Complementary Engagement

A Smarter Approach to Cyber Attack Authorities

2018 Essay Competition Winners

Cover 2 images (top to bottom): Naval Aircrewman embarked aboard USS *Wasp* prepares patient's family for evacuation during relief efforts in wake of Hurricane Maria, St. Croix, U.S. Virgin Islands, September 21, 2017 (U.S. Navy/Levingston Lewis); Sailor gets baptized in hangar bay aboard USS *Harry S. Truman*, Atlantic Ocean, July 8, 2018 (U.S. Navy/Rebekah A. Watkins); World War II veteran Claude Cawood, former section chief on M105 Howitzer who served 3 years in Philippines, gives high-five after firing M777 Howitzer, August 9, 2018, at Camp Grayling, Michigan (U.S. Army National Guard/Sara Robinson)

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Marine with 3rd Battalion, 7th Marine Regiment, 1st Marine Division attached to Special Purpose Marine Air-Ground Task Force, Crisis Response—Central Command, prepares to board MV-22 Osprey at Fire Base Um Jorais, July 6, 2018 (U.S. Marine Corps/Carlos Lopez)

Executive Summary

As a student of leadership in many settings, I have long sought to see it from the position of those who are being led. They know best what good leadership looks like and how it feels, as they are the ones who help leaders succeed. At the U.S. Air Force Academy, first-year cadets are given a small book that contains quotations and other basic facts about the Service that they must memorize and recite on command by upper-class cadets. As cadets, my classmates and I were taught that followership was the basis of good leadership. The theory was if we learn how to follow, then it would be easier to see how to lead. One of the longest quotations I had to memorize was not from an Airman, or about airpower, but it had a profound

effect on how I viewed leadership, especially as a follower. It came back to me instantly when I read about a senior officer who was being disciplined for not following the letter of the law while in command.

The passage is from West Point graduate, Civil War hero of the Western campaign and Sherman's March to the Sea, and Medal of Honor winner Major General John M. Schofield, as he gave the graduation address at West Point in 1879:

The discipline which makes the soldiers of a free country reliable in battle is not to be gained by harsh or tyrannical treatment. On the contrary, such treatment is far more likely to destroy than to make an army. It is possible to impart instruction

and give commands in such a manner and such a tone of voice as to inspire in the soldier no feeling, but an intense desire to obey, while the opposite manner and tone of voice cannot fail to excite strong resentment and a desire to disobey. The one mode or other of dealing with subordinates springs from a corresponding spirit in the breast of the commander. He who feels the respect which is due to others cannot fail to inspire in them respect for himself. While he who feels, and hence manifests, disrespect toward others, especially his subordinates, cannot fail to inspire hatred against himself.

This set of ideas seemed quite at odds with the treatment a "doolie" like myself typically received in those days at the Academy, but in the end, those words

and their value to me stuck. I recently read of a senior officer who was relieved for what I gather was a leadership style that embodied the darker side of what Schofield warned against.

General Joseph Dunford has stated, "As a leader of consequence, it's never about you." He believes that our military leaders should share the quality of moral courage. Leadership is neither a right nor an entitlement but a privilege and an honor that must be carefully respected. In this day of constant social media bombardment and constant surveillance via cell phones, enlightened senior leaders are likely to thrive while those who "fail to inspire"—or simply cannot be the best steward of our son's and daughter's futures—will become a costly burden we can no longer afford. In an increasingly complex and threat-filled world, the Nation expects the military to protect them, and that means leaders at all levels must lead with the highest principles in mind—*always.*

In this issue's Forum, we offer two interesting views on how to deal with the environment facing the joint force today, and for the foreseeable future. Clearly, the United States has moved to focus on state competitors after nearly two decades of dealing with violent extremism primarily in one region of the world. Stephan Pikner helps us see the arc of U.S. strategy from the Cold War to the present and suggests that complementary engagement with allies and partners backed by certain revitalization of U.S. capabilities will position the United States to compete in this new strategic world. With a change in administration, some of the efforts that began under the Obama administration with the concept of the "Third Offset Strategy" have either continued or have been shelved. Technology and strategy thinker and *JFQ* alumni James Hasik gives an excellent explanation of the Nation's offset strategies and describes how current innovations supporting the Third Offset Strategy can help the U.S. military win the Nation's wars.

JFQ next presents the winning essays from the 12th annual Secretary of Defense and 37th annual Chairman of the Joint Chiefs of Staff Essay Competitions, held here at National Defense University in May 2018. Twenty-nine senior faculty members from 15 participating professional military education institutions served as judges to determine the best student entries among the three categories. Captain Kapil Bhatia, Indian Navy, winner of the Secretary of Defense National Security Essay competition, provides one of the best articles we have seen in recent years about the impact of China's expansion projects in the South China Seas and what the United States can do about it. In a rare event, the judges awarded a tie for first place in the Chairman's Strategy Article competition, so we are pleased to bring both of these papers to you. Major Edwin Chua, Singapore Army, offers the cautionary tale of the misinformation cyber attack on Qatari state media in 2017, and Lieutenant Colonel Michael Wagner, USA, discusses the Russian offer of a peacekeeping force in Eastern Ukraine as not being something the United States should completely dismiss.

In Commentary, two interesting articles take us from the cutting edge of technology in today's environment to the Korean Peninsula of some 65+ years ago. Michael Kidd, Angela Quinn, and Andres Munera bring us a compact primer on additive manufacturing and its potential game-changing impact on how the joint force is logistically supported. Returning *JFQ* author Price Bingham offers his take on the evolving relationship of the U.S. Air Force and U.S. Army in the Korean War. His unique perspective will surely stimulate an age-old debate on the relationship between the Army and Air Force.

Our Features section takes us into the "hot" topics affecting the joint force, and all three relate to current operating environment and how the military might adapt to it. James Hayes III discusses the role of special operations forces in the multidomain battle concept. Addressing the growing issue of how to deal with the threat of cyber attack, Michael Carvelli next describes a better approach to establishing the rules for our responses. For many years, calls for the military to adapt or transform have been constant, but an accepted approach has been allusive. Hassan Kamara suggests we look at Kotter's Eight-Step Methodology as a potential answer.

In Recall, we find an interesting discussion of strategic bombing and the application of airpower to war. While no single article of the length we accept could hope to fully cover the entire history of this topic, Michael Trimble offers a successful run with his discussion of the evolution of Air Force strategic bombing from 1918 to 1974.

Along with three excellent book reviews, our Joint Doctrine section is fairly robust this issue with three valuable pieces on a range of joint force support issues. In his continuing series of interagency focused articles, George Katsos offers a summary of joint force campaign activities to execute the U.S. approach to civilian security. Bringing in the multinational partners that are essential to many U.S. military operations around the globe, David Gayvert describes how U.S. Joint Personnel Recovery missions leverage international forces. In an important update article, Andrew Keene helps us understand the key details of the new Joint Publication 4-0, *Joint Logistics.* And as always, you can keep track of the ongoing changes to how the joint force fights with the Joint Doctrine Update.

What do you think about the joint force? Where do we need to adapt to meet the future as you see it? Where does leadership make a difference to you, and what does good leadership look like? When you think you have some answers, *JFQ* is here to help you reach out to the joint force and beyond. **JFQ**

Wɪʟʟɪᴀᴍ T. Eʟɪᴀsᴏɴ
Editor in Chief

Soldiers assigned to 10th Special Forces Group (Airborne) conduct urban operations training near Stuttgart, Germany (U.S. Army/Jason Johnston)

Complementary Engagement
An American-Led Response to Rising Regional Rivals

By Stephan J. Pikner

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After 17 years of the war on terror, the United States and its allies stand today at a grand strategic inflection point. As America concentrated on Iraq, Afghanistan, and countering violent extremism across the globe, regional powers such as China, Russia, and Iran dramatically expanded their ambitions and capabilities. Starting with the 2008 Russian invasion of Georgia, and accelerated by the global financial crisis of 2008–2009, this resurgence of great power assertiveness has been met with a certain weariness by the West. While American allies and supporters of the rules-based international order have—in many cases belatedly—woken up to the threat of systemic upheaval, the lack of a shared organizing principle has limited the free world's response. Emerging rivals have historically focused minds and opened wallets, but today America's military is hamstrung by competing visions and priorities.

In this emerging global security environment, the United States should modify its military structure and global posture to counter the full array of rising regional rivals and ensure the continued security, freedom, and prosperity of its allies and like-minded partners throughout the world. Through a process of deliberate security partnership and capacity-building—an approach this article dubs "complementary engagement"—the United States can maintain global leadership, adapt to today's threats, and rebalance the burden and risk of security to reflect modern economic realities.

The departure point for this article is G. John Ikenberry's view of the post–Cold War era as an "American-led liberal hegemonic world order," where unrivaled U.S. strength underwrites economic growth and political liberalization through a widely accepted, voluntary, rules-based, but increasingly atrophying system. While the inherent stability of unipolarity has been debated by international relations scholars, the failure of a cohesive counterbalancing coalition to emerge as a challenge to the American-led system supports Ikenberry's benign view of U.S. dominance.[1] This does not mean that the United States and its allies do not face an array of increasingly assertive and capable threats that seek to undermine this order—as the 2018 National Defense Strategy clearly states, we are facing "increased global disorder, characterized by decline in the longstanding rules-based international order."[2] Rather, it sees these rivals as probing for weakness along the periphery, and seeking relative gains from the resultant anarchy.[3] While there are many elements to the American-led, rules-based international order, this article argues the largest and most critical piece of the structure that undergirds it is U.S. military power.[4] Given a range of rising regional rivals who are engaging in interstate competition, along with the continued war on terror and increasingly independent and well-armed allies, how can the United States best ensure continued security and prosperity?

To answer this question, this article begins by tracing the evolution of strategy from the end of the Cold War to the recently published National Security Strategy (NSS). Examining proposed alternatives to America's grand strategy and the events that shaped its evolution frames the second section, which explores the current dilemma and helps differentiate today's challenge from the previous contexts that still form the foundation for many current proposals. In the final section, this article proposes a comprehensive military structure and posture shift—complementary engagement—that better addresses the dilemma of rising regional rivals.

The Evolution of Post–Cold War Grand Strategy

The collapse of the Soviet Union prompted a broad reassessment of American grand strategy. *Deep engagement*, the prevailing American strategy during the Cold War, can be defined as the enduring diplomatic, informational, military, and economic partnerships with a wide range of allies and partners across the globe that underwrote sustained economic growth and regional stability in the face of communism. It enabled the West German and Austrian postwar *Wirtschaftswunder* and the phenomenal growth of the "Asian Tigers" in the shadow of Soviet and Chinese communism, and nurtured liberal democracy in Europe and Asia.[5] Deep engagement's critics, though, cited the high cost of maintaining this military footprint, the trap of allies shirking their defense responsibilities, and the risk of being drawn into peripheral conflicts as reasons to reassess this grand strategy in the wake of the Soviet demise.[6] Several alternatives to the Cold War approach of deep engagement were posited in the 1990s. These ranged from a return to pre–World War II reclusiveness to a continuation of the expansive (and expensive) Cold War posture. This debate considered several options, broadly categorized as neo-isolationism, selective engagement, cooperative security, and primacy.[7]

Neo-isolationists advocated disentangling from the web of alliances and commitments across the world that was woven during the Cold War. The geographic advantages of the United States, coupled with its lack of historical rivals and overwhelming military and economic power, could allow America to safely step back from the world. Even if a threat to the United States did emerge, geography would provide a buffer to allow for rearmament, as it did in the opening years of World War II. Left unanswered by proponents of neo-isolationism, however, was the threat of nuclear proliferation among states that could no longer rely on the American posture of extended deterrence for their own security.[8]

Advocates for selective engagement sought to focus American power solely on geopolitically critical areas, rather than spreading it ineffectually across the globe. By prioritizing strategic regions, selective engagement "steers a middle course between isolationism . . . and world policeman."[9] The underlying security relationship between the United States and its allies would remain similar to the Cold War dynamic, but instead of seeking to contain the Soviet threat, American forces would stabilize and secure key political and economic allies.

While selective engagement supports a relatively narrow and material definition of American national interest, the option of collective security considered peace a public good that must be provided by the shared efforts of like-minded nations. Through collective action to uphold norms and punish rogue actors who undermine peace and stability, states would act in concert to deter conflict and limit its effects. Regional collective security focused on building such systems in discrete areas of the world, while the global version of the concept viewed security as a world-spanning ecosystem where no one region could be isolated. Liberal institutions would be central to overcoming the inherent collective action problems.[10]

Primacy—the most ambitious option considered—is a global extension of hegemonic stability theory: "Only a preponderance of U.S. power ensures peace."[11] Primacy sought to capitalize on America's post–Cold War unipolarity through sustained investment in and use of all elements—diplomatic, informational, military, and economic—of national power. This approach would mitigate the collective action problems inherent in collective security while extending the values of democracy and free trade across the world in a way that the more limited strategy of selective engagement could not.

The debate over the fundamental nature of American foreign policy continued through the 1990s and was reflected in academic articles, policy documents, and foreign policy decisions. The final Clinton administration NSS integrated the ideas of primacy and cooperative

security into initiatives that expanded the North Atlantic Treaty Organization (NATO), promoted free trade, and strengthened international cooperation against terror and weapons of mass destruction. Cooperative security's focus on controlling illicit arms and rogue states was evident in nonproliferation cooperation with Russia, and in a nod to global collective security's requirement for resolving and containing conflict across the world, a variety of peace-building successes in five continents were cited in the 1998 NSS as evidence of the value of sustained engagement.[12]

The shock of September 11, 2001, reframed the debate over American foreign policy as the defense of the homeland clearly took priority. Threads of cooperative security remained in the 2002 NSS, though now woven into the global counterterrorism effort: "Today, the world's greatest powers find [themselves] on the same side—united by common dangers of terrorist violence and chaos."[13] The 2006 NSS continued this theme by starkly opening with the declaration that "this is a wartime national security strategy." Moving beyond the immediate demands of counterterrorism and missile defense, though, the 2006 strategy sought to address the causes of worldwide instability by "promoting freedom, justice, and human dignity" while also "leading a growing community of democracies."[14]

By the middle of the 2000s, however, the post-Soviet "third wave" of democratization was cresting. Increasingly, states that were previously categorized as "democratizing" began backsliding toward a mix of illiberal institutions and fragmented politics.[15] The 2008–2009 financial crisis, compounded by a series of bailouts of spendthrift members of the Euro currency zone, exposed economic weaknesses and political divisions among the members of the European Union. In the United States, economic distress compounded existing war-weariness. This mood was reflected in the 2010 NSS, which emphasized that America's "strength and influence abroad begins with the steps we take at home."[16]

During this inwardly focused period, though, rivals of the U.S.-led order began asserting power more openly in their respective regions. Chinese economic growth generated a sense of national confidence that was matched with sustained investment in its military. Developments in antiaccess/area-denial (A2/AD) weapons systems designed to preclude an unimpeded, low-risk American deployment into theater proceeded rapidly. An incremental program of land reclamation and island-building in the South China Sea sought to create the (newly minted) ground that would extend Chinese military and economic power and de facto sovereignty into international waters shared by an array of nations.[17] Iran, capitalizing on the power vacuum created by Iraq's continued instability, involved itself more openly and assertively in Syria, Lebanon, Yemen, and Iraq. Russia flexed its muscles as well by creating and then capitalizing on a series of "frozen conflicts" in regions along its periphery. Some of these manufactured conflicts erupted into open war, such as in 2008 against Georgia and 2014 against Ukraine. Others, namely Transnistria in Moldova and Nagorno-Karabakh in Azerbaijan continue to linger unresolved.[18]

Viewed in the global power balance, the growth of regional rivals could prompt several possible actions by American allies. Some scholars consider a unipolar system inherently unstable, and that once a credible alternative to the United States rises, states will align with it to balance out overweening American power.[19] Others argue that unipolarity is more stable and durable, especially given the shared gains from economic interdependence and the common threat of nonstate actors and rogue states that seek to undermine a rules-based international order that is more democratic, liberal, and prosperous than previous ones. These shared benefits drive states to bandwagon with the American liberal leviathan, rather than counter it.[20] Finally, balance-of-threat theory claims that a power's intent, more than strength, drive in state alliance calculations.[21] Given the historical animosities between the rising

regional powers and their neighboring American allies, coupled with the pattern of expansion common to Iran, China, and Russia, it follows that leaders in nearby states would see them as a threat and seek to counter them by strengthening their ties with Washington, regardless of the raw balance of global power.

Balance of threat is increasingly supported empirically. In recent years, many American allies have "hard balanced" against their more assertive neighbors by building their military capacities. Persian Gulf states, which have long lavished petrodollars on military hardware, have continued their investments despite lower oil revenues. Saudi Arabia, Kuwait, Qatar, and the United Arab Emirates have all increased their spending on sophisticated American-built antimissile systems to defend against Iran, a trend highlighted by the $110 billion weapons deal struck during President Donald Trump's 2017 visit to Riyadh.[22] Asian states such as Vietnam and Singapore have dramatically increased their spending on naval and air weapons to balance against China. Even Japan, constrained by its pacifist postwar constitution, is investing heavily in expeditionary weapons platforms such as helicopter carriers.[23] While Europe has been wracked by economic and political instability, Russia's invasion of Ukraine inspired action. Sweden, though not a NATO member, has reintroduced conscription and is remilitarizing islands in the Baltic Sea to counter Russian probing.[24] Poland is also investing in territorial defenses and now fields the largest tank force in Europe, apart from Russia. NATO members in the Baltics, the likeliest targets of Russian aggression, are developing their forces to counter the subversive gray zone tactics of unmarked soldiers and ethnonationalistic instigation employed earlier against Georgia and the Ukraine.[25]

While these allied military investments, particularly from NATO members whose forces have atrophied dramatically since the end of the Cold War, are welcomed in Washington, reckless driving—the inverse problem to free riding—can also emerge.[26] Reinvigorated American allies facing regional rivals

Mentored by Army's 45th Infantry Brigade Combat Team, Ukrainian soldier calls out to fellow soldier during training at Yavoriv Combat Training Center, International Peacekeeping and Security Center, near Yavoriv, Ukraine, May 15, 2017 (U.S. Army/Anthony Jones)

may be overly emboldened by their ties to Washington and rashly launch ambitious military strikes in the belief that the United States will back them up. Georgia's actions in the summer of 2008, prior to the brief and calamitous war with Russia, were explained in part by overconfidence in its growing ties with NATO.[27] Israel's plans for strikes against Iran's nuclear sites were widely judged as contingent on American leadership support, which was, in turn, not keen on being drawn hastily into war. The French and British–led air campaign against Muamar Qaddafi's regime in Libya also hinged on American support, and when the European military efforts stalled, the United States was obliged to take the lead.[28]

Not all states have pursued hard balancing against the rising threats in their neighborhoods, though. Most NATO countries still fall short of their

pledge of spending 2 percent of gross domestic product on defense. The German military, for example, has seen its once-vaunted tank force that numbered over 7,000 in 1991 dwindle to just 237, of which only 100 are combat-ready.[29] Given the large economies of many NATO Allies, these levels are less dramatic in absolute terms, but redundant structures, parochial procurement, and competing priorities make NATO less than a sum of its parts.[30] Some of America's more peripheral allies in the Gulf such as Oman and Qatar have hedged their diplomatic alignment with Washington with outreach to Tehran. The Philippines, a longstanding U.S. ally, has pursued engagement with China under President Rodrigo Duterte's regime. These strategies of accommodation echo the Cold War alignment of Finland and grant legitimacy and momentum to a rising rival.[31]

In short, a new security dynamic has emerged among the United States, its allies, and their common rivals who seek to upend the American-led, rules-based international order in their respective corners of the world. Accordingly, the debate about the breadth and intensity of American foreign engagement, which paused following September 11, has also reemerged. The 2015 NSS recognized the rising threat of regional powers, most notably from Russia and China, countries that had previously been described largely as partners against terror. The Trump administration's recently published NSS solidifies this prioritization of revisionist states as the primary threat to American security and prosperity: "China and Russia want to shape a world antithetical to U.S. values and interests."[32] While the challenges to the American-led international order are increasingly clear, the answer is less so,

Marine with 3rd Battalion, 4th Marines, attached to Task Force Koa Moana 17, assesses area during raid for culminating event of Exercise Crocodilo in Metinaro, Timor Leste, September 13, 2017 (U.S. Marine Corps/Juan C. Bustos)

especially with the Trump administration's frustration with parsimonious allies who look to Washington for continued support. In policy debates, advocates for neo-isolationism or retrenchment, rebranded as "offshore balancing" and billed as a way to reduce free-riding among allies and ease the pressure on an overextend American military, squared off against defenders of continued global engagement.[33]

The difference between these schools largely hinges on two distinct issues: the expected cost savings from retrenchment and whether nuclear proliferation, even among allies, is tolerable. Supporters of a neo-isolationist policy of offshore balancing or retrenchment often cite the cost savings of a reduced force structure, while their opponents counter that previous withdrawals have ended up costing America more, in both blood and treasure.[34] Similarly, advocates of neo-isolationism largely accept a degree of nuclear proliferation among U.S. allies who seek to ensure their security as American power recedes, while those with a more pessimistic view of proliferation argue that extended deterrence is credible only with the continued forward presence of U.S. forces, and therefore continued engagement is critical to containing the spread of nuclear weapons.[35]

These re-warmed arguments, however, do not capture the fractured threats around the world or consider the significant changes in both American and allied military structure and capabilities. The rival powers that are building their military strength and probing American power and resolve are regional, not global ones. Often their tactics involve quickly manufacturing a small-scale fait accompli, rather than a large-scale invasion through the Fulda Gap or across the Taiwan Strait. Furthermore, there is no universal ideology, such as Soviet communism, that binds America's rivals together. Similarly, there is no great project, such as building liberal democracy, to focus U.S. allies. Probes by an adversary in one theater are not part of a coordinated, global scheme to test U.S. resolve, as was often the case in the Cold War. This lack of broader cohesion on both sides of the divide results in a fractured array of independent, regional rivalries that are often colored more by historical animosity than by a global struggle between Washington and a single foreign capital.

Caught between the domestic pressure to contain military spending, restraining some rearmed allies from reckless driving while nudging others to bear their fair share of the security burden, and countering a diverse array of regional rivals, a new American approach to building and deploying its military in concert with its allies across the world is in order.

Complementary Engagement

Buttressing America's network of allies and securing its national interests require acknowledging this new security dynamic and reshaping the military accordingly. While grand strategy can include a broad set of elements, ranging from financial prowess to scientific progress to cultural programs, the rebalancing of America's global security role presented here centers on military structure and posture. The U.S. military's outsize importance in American foreign policy is a function of its unmatched size, flexibility, and reach. Changes in structure and posture are expensive, lengthy, and are subject to path-dependent forces and sunk costs. These qualities also make shifts in the American military an unambiguous signal to both allies and adversaries across the world: talk is cheap, but aircraft carriers are expensive.

The unifying logic of this new military strategy is *complementary engagement.* Complementary engagement hinges on allied investments in their territorial defense, matched with forward-deployed American forces that can be quickly reinforced by globally projected U.S. military power. Forward-deployed U.S. troops would serve three purposes: integrate host-nation defensive forces and American military power, defend infrastructure from A2/AD threats while receiving U.S.-based forces deployed from the homeland during a crisis, and serve as a signal of American commitment. Rather than mirror the structure and capacity of allies, the U.S. military would complement their defenses with its unique capabilities and reach.

While complementary engagement builds on post–Cold War debates among cooperative security, selective engagement, and primacy, it would not have been possible to implement two decades ago. Without reinvigorated allies, some of whom have only recently realized that they must pursue a greater measure of military self-help rather than merely free-ride on the United States for security, a complementary engagement force posture would merely be an over-extended version of primacy, shorn of

the forward-deployed American combat formations needed to slow an enemy invasion of allied soil. In this sense, complementary engagement builds on, but moves beyond, hybrid strategies proposed in 2012, such as "forward partnership," as a more cost-effective way for the United States to retain its worldwide footprint than the traditional notion of deep engagement.[36] Similarly, without the focused investment in and deployment of high-end strike capabilities and logistics infrastructure detailed later, complementary engagement would essentially be offshore balancing. The unique advantage of complementary engagement, lacking in previous proposals, is the meshing together of American and allied capabilities, a balance that at once dissuades reckless driving and limits free riding.

Complementary engagement hinges on the United States and its partners each bringing critical forces to a conflict, thereby binding their security interests together closely and allowing the political and economic benefits of partnership to flow in both directions. Unlike the deep engagement of the Cold War, where the United States exported security to regions on the Soviet periphery, allowing them to grow economically and develop into liberal democracies, complementary engagement rests on a more equitable set of relationships. While Cold War security engagements were often regional manifestations of the global U.S.-Soviet dichotomy, current tensions are more local and historical, such as Germany-Russia, Saudi Arabia–Iran, and Japan-China. These renewed regional threats have stimulated allied military spending, particularly in East Asia and the Persian Gulf, which complementary engagement uses both for burden-sharing and as a hedge against unilateral action by an ally against a regional adversary.

U.S. military operations are already taking on some characteristics of complementary engagement. The American role in Operation *Odyssey Dawn*, where intelligence, aerial refueling, and munitions were provided to European air forces flying strike missions over Libya, is a template for complementary engagement.

In South Korea, the American footprint is transitioning from frontline warfighter to guarantor for the South's army, with the unique capabilities and capacity of the U.S. military deterring large-scale aggression by Pyongyang. In the Middle East, the United States provides intelligence, logistics, precision fires, and special operations support to the international coalition fighting the so-called Islamic State (IS). This support allows for the coordinated application of allied assets while enabling regional partners to lead the close fight, a critical element for the ideological defeat of IS.

In summary, complementary engagement is an organizing principle that brings coherence to much of what the military has been doing since the end of the Surge in Iraq. In a sense, it proposes a force that matches both current demands and can better frame allied investments. What is lagging the operational requirements and shifting international context are the force posture and structure of the American military, the concept to which this article turns to next.

Force Structure under Complementary Engagement

This article does not propose any inherently political foreign policy shift by the United States—such a recommendation is beyond the scope of the military. Neither is it a budget-driven scaling of the existing military, with the expected capabilities and reach of a smaller version of Armed Forces driving how ambitious a strategy is possible. Rather, the following proposal outlines a future force structure and posture better suited to fight and win the conflicts that America has recently been engaged in while deterring escalation driven by the more bellicose designs of regional rivals in the context of the existing U.S. alliance structure.

First, the U.S. military must retain and modernize its nuclear forces. Continued extended nuclear deterrence over technologically advanced allies such as Germany, South Korea, and Japan not only protects those states but also dissuades them from developing nuclear weapons themselves in response to a

regional threat and possible American neo-isolationism. The sharing of Trident submarine-launched ballistic missile technology with the United Kingdom and the forward-basing of B61 tactical nuclear bombs, deliverable by allied dual-capable fighter aircraft in NATO countries, supports complementary engagement and should be continued.[37] While several widely proposed strategic alternatives discount the threat of nuclear proliferation among established allies, complementary engagement is rooted in nuclear pessimism: a greater number of nuclear armed states, even American allies, is inherently destabilizing.

Second, the United States should enhance its long-range strike capabilities. These include the Air Force's long-range strike bomber (LRSB), long-range standoff (LRSO) cruise missile, ground-based rockets such as the Army Tactical Missile System replacement, and submarine-launched, conventionally armed missile platforms such as the Virginia Payload Module (VPM). Outsize investment by the United States in these systems has several benefits for both America and its allies. First, these weapons can be quickly deployed across the globe, allowing for efficient centralized management of limited, expensive platforms. Second, their ability to strike deep into enemy territory with conventional munitions holds an adversary's forces at risk, much like Chinese A2/AD capabilities threaten American warships in the western Pacific. Third, these platforms are less threatened by A2/AD systems than aircraft carriers or forward tactical air bases. Finally, and most critically, American control of such weapons reduces the risk of reckless driving by allies, as Washington would have a clear veto over any escalation.

Third, complementary engagement should include air and missile defense. Forward-stationed ballistic missile defenses (BMD) are critical to reassuring allies and enabling the rapid deployment of American reinforcements. Terminal defenses such as the Terminal High-Altitude Air Defense, sea-based Aegis, and shorter range Patriot can reliably protect an ally's cities, bases, and key infrastructure from ballistic missiles. The success of Israel's Iron Dome system in countering Hamas rockets during the 2014 war shows how effective missile defense systems can be against conventionally armed rockets. Beyond the benefits of protecting Israeli civilians and property, Iron Dome's success relieved the political pressure on Israel's leadership to launch a premature ground offensive into Gaza, pressure that led to mistakes in the 2006 war against Hizballah.[38] BMD systems can defend not only allied cities but also the ports where reinforcements would disembark. Terminal defense systems are a reliable way to defend against an enemy's deadliest weapons while not undermining the balance of nuclear deterrence that exists among the legitimate nuclear powers.

The fourth element of U.S. military force structure to be strengthened under complementary engagement is the backbone of the joint force: expeditionary enablers such as logistics, intelligence, and communications. Air Force tanker, transport, and electronic warfare aircraft; Navy support and auxiliary vessels; and Army logistics distribution, network systems, and prepositioned stocks are the unglamorous connective tissue of America's military capability. Space platforms that provide secure communications and reconnaissance capabilities are similarly critical. These capabilities can integrate and sustain smaller allied combat elements in an expeditionary campaign, while acting as a brake on overeager reckless driving by an aggrieved ally that is acting beyond America's interests. They can also enable the rapid deployment of American combat forces based in the continental United States into a crisis theater, allowing for these formations to maintain a high level of readiness and modernization stateside.

A clear example of American use of logistics in support of allied action is the delivery of munitions during a crisis. Many countries rely on the United States for military equipment, and munitions stockpiles are often a lower priority than weapons such as airplanes, tanks, and ships. The emergency delivery of munitions to Israel during the 1973 Yom Kippur War helped turn around the dire situation following the surprise attack by Egypt and Syria. During the 2011 air campaign over Libya, British and French air forces quickly depleted their stocks and were forced to rely on American resupply to sustain the operations against Qaddafi.

In today's domestic fiscal environment, complementary engagement must be cost neutral. The tradeoffs that allow for increased investment in the four categories listed earlier will affect all Services but will increase the overall efficiency and effectiveness of the military to deter and defeat rising regional rivals. U.S. military force structure changes traditionally focuses on tradeoffs among key force elements such as Navy aircraft carrier strike groups (CSGs), Air Force tactical air wings, Marine divisions, or Army brigade combat teams. Many recent studies of possible future forces structure revolve around these same key force elements and recommend scaled versions of today's military, which in turn reflects the Cold War structure that formed the basis for the drawdown debates of the 1990s.[39] While there are marginal changes to special operations and cyberwarfare capabilities, the mix of key force elements that drive the lion's share of American military structure are taken for granted.

With complementary engagement's additional emphasis on nuclear recapitalization, ballistic missile defense, and theater enablers, some of the traditional key force elements will face downward budgetary pressures. Emerging capabilities such as the LRSB, LRSO, and VPM duplicate the strike capabilities of the CSG at lower cost and higher survivability, reducing the requirement for carriers and freeing their escorts to fight as independent squadrons of surface combatants. The capabilities of smaller, less capable vessels such as the littoral combat ship (LCS) are easily duplicated by our allies, who routinely deploy similarly sized corvettes with greater combat power and reliability than the LCS. Increased A2/AD threats make large-scale airborne or amphibious operations unacceptably risky, and the units tailored for these missions should be reduced in a future force structure to numbers

Blue crew of USS *Nebraska* transits Hood Canal following test launch of two unarmed Trident II D5 missiles off coast of California, April 2, 2018 (U.S. Navy/Michael L. Smith)

capable of large-scale raids, rather than attempted invasions. Both the Army and Marine Corps would retain much of their current combat strength but would increasingly focus on interoperability with allies through rotational force deployments and exercises. Active component theater enablers, forward deployed and continuously used, would replace some Reserve component units. Air Force tactical fighter aircraft—platforms common among American allies—would decrease in number but increase in effectiveness through improved tankers, networked sensors, and allied interoperability.

Complementary engagement does carry some risks. First, it assumes sustained military spending by allies, a continuation of the current trend. American allies, particularly in Europe, are being pressured to increase defense spending by both Washington and a newly assertive Russia, and

complementary engagement gives them a framework to prioritize this spending. A larger concern is that the states closest to the rising regional rivals—countries whose military expenditures are generally growing—will opt to equip their forces with a full range of offensive and technically ambitious weapons systems, much like France did with its independent nuclear *force de frappe* under Charles de Gaulle in the 1960s. This risks duplicating American capabilities at high costs, limiting more sensible investments in territorial defense, while also enabling reckless driving in a crisis. Complementary engagement mitigates this risk by giving America's allies a clear plan of military investment that maximizes their national defense.

Second, although it retains the capacity for unilateral American action, complementary engagement reduces the quantity of forces available for such

action. Sustained, large-scale, out-of-area missions, even with a coalition of American allies, would be less viable as these forces focus on territorial defense. While this trend away from large contributions to nation-building missions is already under way, complementary engagement will exacerbate it. While there is a risk that an emerging crisis will call for such a deployment, policy guidance since 2012 has already assumed this risk: as the 2012 Defense Strategic Guidance states, "U.S. forces will no longer be sized to conduct large-scale, prolonged stability operations."[40]

Geopolitically, a shift toward complementary engagement may be interpreted as retrenchment without sustained, and public, rotations of American combat units to forward bases in concert with allied forces. Clear, visible, on-the-ground demonstrations of continued American presence, will, and capability are critical

Chaplain prepares wall of school for new paint during community relations event supporting Southern Partnership Station 17, Colón, Honduras, August 9, 2017 (U.S. Navy/Kristen Cheyenne Yarber)

to ensuring that neither America's adversaries nor wavering allies perceive the United States as attempting to balance from a distance. While such exercises will be conducted by the U.S. military, nesting them with the Department of State's public diplomacy capabilities multiplies their effect. U.S. Army Europe's synchronization of Operation *Dragoon Ride* with a range of NATO Allies and with the U.S. State Department is an illustrative example of this approach.[41]

Complementary engagement builds on the grand strategic options first laid out in the 1990s. Rather than merely updating the arguments from two decades ago, complementary engagement integrates the current strategic context of emerging regional powers, reinvigorated allies, ballistic missile threats, and nuclear proliferation to propose a new military structure and posture. By rebalancing relationships with allies and partners across the globe for more equitable

military burden-sharing while investing heavily in ballistic missile defense, long-range strike, logistics, communications, and nuclear weapons capabilities, the United States can continue to underwrite a rules-based international system that creates the conditions for economic growth, liberal democracy, and regional stability. Importantly, complementary engagement lays the groundwork not only to enable allied defense but also to restrain any reckless driving that could pull the United States into an unnecessary war with a rising rival on behalf of an overeager ally.

The resulting military force structure would build the aforementioned capabilities while reducing other key force elements, all while retaining the capacity to fight and win a unilateral war. While there are some risks to this grand strategy of complementary engagement, the benefits of closely binding our allies and partners to our military make it the best

way to further a more peaceful, prosperous, and free world. **JFQ**

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Pilot Training Next students train on virtual reality flight simulator at Armed Forces Reserve Center in Austin, Texas, June 21, 2018 (U.S. Air Force/Sean M. Worrell)

Beyond the Third Offset
Matching Plans for Innovation to a Theory of Victory

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In November 2014, Secretary of Defense Chuck Hagel announced the launch of the Third Offset Strategy. Despite official insistence to the contrary, the offset remains substantially a technology strategy, and one largely focused on the interrelated technologies of autonomy and artificial intelligence (AI). While progress in these fields has been brisk, their offsetting qualities are not obvious, and they may not be realms of enduring comparative advantage to the United States. If they do prove efficacious, military planners must contemplate profound organizational and doctrinal changes to compensate for rapid change in the ways of war. Whatever the likelihood of future military-technological trajectories, American strategists might consider less expensive and more certain ways of dealing with some adversaries' local superiorities.

Three Offset Strategies

To understand how the department stumbled into this set of choices, we should review what Americans mean by the term *strategy*. In Arthur Lykke's formulation, now widely cited within the Armed Forces, a strategy is a plan, tying means to ways, to achieve overall ends.[1] However, the effect should not be seen as additive: applying more resources (means) through more methods (ways) does not generally produce better strategy. Applying *all* elements of national power may just produce denser briefing slides and more frustrated officials.[2] Any

good strategy must embed an economical theory of victory, and that requires deeper thinking.[3] One alluring concept can be an *offset* strategy, which is consciously designed to diminish or balance adversaries' known advantages with asymmetric alternatives. Done well, an offset strategy may impose such costs on adversaries that they will decline to become actual enemies.[4] In 2014, after years of enduring insurgents' asymmetric attacks, Pentagon leadership decided to borrow the approach, taking a page from one of its old playbooks.[5] Thus, in a speech that November, Secretary Hagel announced the launch of the Defense Innovation Initiative, which would include the now widely discussed Third Offset Strategy.[6]

Hagel made the announcement, but the progenitor of the concept was clearly former Deputy Defense Secretary Robert Work, who kept his position through Hagel's handover to Secretary Ashton Carter, and even into the first several months of the Trump administration under Secretary James Mattis. Work made this "big idea" initiative a central occupation of his tenure. In his view, the "job of the deputy secretary, the primary job, is to fashion a program that is constant with the secretary's strategic vision."[7] He traced his thinking about the need for an offset strategy to 2012, when he was Under Secretary of the Navy, and Carter himself was Deputy Secretary of Defense. Carter established a Strategic Capabilities Office (SCO) that year, designed to cost-effectively draw new capabilities out of existing systems with limited injections of advanced technology.[8] As Work was one of the few Obama administration officials asked to remain into 2017, one could surmise that the new administration, or at least the new Defense Secretary, was reasonably taken with the concept.

In Work's figuring, the first great American offset strategy was the New Look of the Eisenhower administration. In 1953, the National Security Council took stock of several serious strategic problems: the cost of the recent Korean War, consolidation of communist control across much of Eurasia, growing

Soviet conventional superiority in central Europe, transoceanic distances over which American reinforcements would need to travel, and reluctance of its North Atlantic Treaty Organization (NATO) Allies to fully rearm during postwar reconstruction.[9] In war, in Nathan Bedford Forrest's famous formulation, it is generally best to "get there first with the most men," but no one on the friendly side had a direct solution. The indirect solution was to threaten massive retaliation, in which the United States would "consider nuclear weapons as available for use as other munitions."[10] While far more economical than matching the Soviets tank-for-tank *ex ante*, it would also have been wantonly destructive *ex post*.

The strategy embedded two important organizational factors. At the highest level, solidarity across NATO was required for deploying and threatening the use of enough nuclear weapons around the periphery of communist Europe to crush any advance. But planning for the New Look recognized from the start that the Soviets would eventually have many nuclear weapons themselves. In 1956, this led the U.S. Army to an intriguing organizational innovation, and a Service-level response to the broader New Look: the Pentomic infantry division. Each formation of three brigades was reorganized into five regimental-sized "battle groups," each containing five infantry companies. Between the discontinued brigades and battalions, an entire level of hierarchy was removed. The smaller, flatter, wider division was intended to have increased survivability through dispersion across the atomic battlefield.

Whether that would have worked was a separate question. During World War I, the Imperial German Army progressively flattened its command structure. In 1916, the brigades between regiments and divisions were effectively eliminated; two brigades of two regiments each became a single brigade of three regiments, but in name only. By early 1918, regiments were serving mostly administrative functions, with battalions reporting directly to division headquarters during battle.[11] The U.S. Air Force takes a similar tack today with its

skip-echelon command hierarchy, which accords mostly administrative functions to groups and numbered air forces. Air divisions were completely eliminated in the 1990s. This approach, however, may be more feasible in relatively static trench warfare, or when managing a 3-day air tasking order. For the U.S. Army in the 1950s, the organizational change went unloved, substantially because of the inherent command and control problems with the communications technologies of the time.[12] In early 1961, President John F. Kennedy's introduction of the Flexible Response strategy convinced the Army that battlefields would likely not be nuclear. By 1965, the Reorganization of Army Divisions plan had returned all Army formations to structures akin to those of the armored divisions of World War II.[13]

Whatever the organizational initiatives, the problem of Soviet numerical superiority had not gone away. In parallel, American observers noted how precision aiming and guided missiles led to high loss rates in the 1973 Yom Kippur War. The first commander of U.S. Army Training and Doctrine Command remarked shortly thereafter that with modern weapons, "what can be seen can be hit, and what can be hit can be killed."[14] Conveniently, during the Vietnam War, the United States had begun investing in a variety of new technologies for precision bombardment and electronic warfare, and Pentagon leadership had reasonable faith in an enduring American advantage in these realms over the Chinese and Soviets.[15] In 1977, Defense Secretary Harold Brown developed a Second Offset Strategy, which he actually termed the "Offset Strategy."[16] He was clearly taken with the idea; his annual report to the Congress for fiscal year 1982 used the word *offset* 15 times.[17]

Effectively employing these technologies further required new operational and doctrinal innovations, notably Follow-On Forces Attack and AirLand Battle. Organizational innovation was another matter. The structures of brigades, wings, and flotillas did not change radically, for the weapons were just swapped in to replace less accurate analogs, and

the precision-guided violence would largely head outbound. However, the sophistication of those formations' higher headquarters would greatly increase, just to manage the flow of information needed for rapid precision targeting. As early as 1984, Marshal Nikolai Ogarkov, chief of the Soviet General Staff, had concluded that NATO's precision conventional weapons could produce battlefield effects approaching those of nuclear weapons, just without the vast collateral damage.[18] In 1991, the first coalition campaign against Iraq produced some astounding results. Large formations of Iraqi armored vehicles made brilliant targets against the cold desert at night, and as U.S. Air Force Chief of Staff General Ron Fogelman later stated, the "Russians got to watch it on television."[19]

Today, the near-peer, pacing competitors remain the Chinese and Russians. While North Koreans, Iranians, and sundry insurgents are vexing, it is the first-division adversaries whose advantages most need offsetting. As before, they challenge American military planning through numbers, distance, and the free-riding of allies. The Russians can notably bring local quantitative advantages in armored forces and air defenses, a budding drone program, and even qualitative superiority in artillery and overland electronic warfare. Their ability to integrate the various arms has been on recent display in the smoldering Russo-Ukrainian war.[20] The Chinese notably bring quantitative superiority in guided missiles, and nearly a continent in which to hide them from approaching ships and aircraft. Both the Russians and Chinese have hugely improved their reconnaissance and surveillance capabilities in just the past 10 years. As such, each seriously poses what was until recently officially termed an antiaccess/area-denial threat.[21]

Work repeatedly stated that the innovations of the Third Offset would be found in technologies, operating concepts, *and* organizational structures. In a seminal speech in London in September 2015, he called for "another doctrinal revival like that of the early 1980s," with "an AirLand Battle 2.0" and "modern concepts as game-changing as Follow-On

Forces Attack."[22] However, during his similar speech in Brussels the following April, he talked almost exclusively about technology, and just two interrelated fields of technology: autonomous systems and artificial intelligence. At that time, he gave particularly short shrift to organization, mostly just reminding us how Alliance solidarity was important to the First Offset.[23] But during a speech to the Air Force Association that September, he again insisted that "offset strategies are not about technology per se, so it drives me crazy when people say, 'Oh, the Third Offset is AI and autonomy.'"[24] Work repeated this view the following month in another speech, but it is just possible that the former Deputy Secretary didst protest too much.[25]

At roughly the same time, Secretary Carter was establishing the Defense Innovation Unit Experimental (DIUx), with locations in the information technology hubs of San Jose, Austin, and Cambridge. The now-permanent DIU has a "chief science officer," but no other such chiefs. Carter's new SCO has focused on technologies, and notably again, autonomous ones. Later, Work established an Algorithmic Warfare Cross-Functional Team to create artificially intelligent software "to sort through vast amounts of video collected by surveillance drones, a flood of data that is overwhelming human analysts."[26] For all this effort, one could be excused for presuming that innovation, at least for some of the recent leadership, has been equated with technology, and particularly information technology. Little work seems to have been done on the required organizational and doctrinal changes. As Benjamin Jensen of the Marine Corps University has written, "too much time is being spent identifying exquisite technological capabilities absent a unifying concept on how to employ military forces."[27]

There are several issues with this technology-laden approach. The first is the appropriateness of the chosen technologies as offsets. Do autonomous, artificially intelligent systems necessarily offset adversaries' advantages in numbers and distance? Perhaps swarms

of intelligent drones, deployed from long-range aircraft, can compensate for local enemy superiorities in missiles or tank troops. That seems the point of the SCO's Perdix drone demonstration, in which a hundred networked tiny aircraft cooperate in performing reconnaissance missions—or perhaps more lethal missions eventually.[28] Even nonlethal autonomous vehicles can track enemies, and in return create more targets for them, alleviating the burden for units that place humans in harm's way, or just far from home.[29] The *Sea Hunter*, the prototype boat in the Anti-Submarine Warfare Continuous Trail Unmanned Vessel program, a joint effort by the Navy and Defense Advanced Research Projects Agency, is promising in this regard.[30] Some of this work has now also been passed to the SCO, just under greater secrecy, as the Ghost Fleet project.[31] Global presence, whatever its real political value, is a very expensive business for the Navy and Air Force every year. The notion that intelligent payloads can be developed and retired faster than tanks, ships, and aircraft is economically relieving.[32] On the other hand, unless armies and fleets of killer robots are to stand watch continuously in Eastern Europe and the Western Pacific, there are practical limits to this approach.

Just Who Is Offsetting Whom?

Alternatively, the Pentagon has other developmental priorities that seem at once operationally simpler, less morally upsetting, and more practically offsetting. Lasers and rail-guns hold the promise of nearly limitless magazines for opposing incoming missile barrages. As the Air Force secretary and chief of staff wrote in July 2014 in their 30-year strategy, "if it costs markedly less for us to defeat a missile than it does for the adversary to build and launch it, the strategic calculus changes significantly."[33] Lasers and rail-guns each demand huge power inputs, and each has been promised as verging on breakthrough for perhaps 50 years. All the same, the Navy's renewed enthusiasm for rail-guns and the pending test on USNS *Trenton* are notable, even if the

USS *Ponce* conducts demonstration of Office of Naval Research–sponsored Laser Weapon System while deployed to Arabian Gulf, November 16, 2014 (U.S. Navy/John F. Williams)

recent track record is mixed.[34] Moreover, recent advances in the practicality of solid-state lasers, and the Navy's actual deployment of a small one on USS *Ponce*, suggest greater promise.[35]

Those physical deployments should remind us that plenty of compelling and possibly offsetting technologies are already on the shelf, or even in service. One could criticize Work's focus as just the latest new, new thing, for "basing a strategy on technological innovation that is not in hand is nothing more than wishful thinking."[36] Then again, the Second Offset bet on nascent technologies very successfully, and many of those advances remain not only available, but also sources of unique American advantage. One was stealth, and the United States remains the leader in the field. With the F-35 and B-21 programs, the military Services are building an aerial armada of stealthy jets to penetrate dense defenses. No matter how many missiles the enemy has, they are nearly useless without target

tracks. Turning Raytheon's SM-6 missile into a ship-killer was an early accomplishment of the SCO, which indeed "reflects a Pentagon push to make old weapons do new tricks for a minimum added cost."[37]

Similarly, "distributing lethality" onto more ships with more missiles would seem to require some engineering work but no great technological leaps forward. The bigger change may be found in a new operating concept and perhaps new procurement priorities.[38] What it does require in technology is robust long-range communications—and at a time of growing adversarial capabilities in cyber-electronic warfare. Success in this realm may not be inevitable. From 2003 through 2009, the Army and its prime contractors, Boeing and SAIC, worked to develop the Future Combat Systems (FCS), a collection of "fourteen manned and unmanned systems tied together by an extensive communications and information network."[39] The latter would enable commanders to "see first,

decide first, [and] act first" on large and fast-moving battlefields.[40] In June 2008, an independent review termed the stability and scalability of that network "an unresolved technical challenge."[41] The next year, Secretary Robert Gates canceled the entire FCS program. In 2017, the Army's objectives for battlefield radios remained yet unmet.[42]

Technological challenges and opportunities thus await on multiple fronts. Indeed, "in the initial stages of the Third Offset Strategy, administration officials and defense commentators advanced a laundry list of possibilities" for which technologies would be areas of focus.[43] To make the Third Offset Strategy a real offset strategy, the United States would need to double down in those areas in which it excelled, but the Chinese did not, and could not. Early in the discussions in the Pentagon, an intellectual battle emerged between advocates of bigger investments in the well-understood assets of long-range precision strike,

Defense Advanced Research Projects Agency successfully completes its Anti-Submarine Warfare Continuous Trail Unmanned Vessel program and officially transfers its technology demonstration vessel, christened *Sea Hunter*, to Office of Naval Research (DARPA)

and something wholly new in AI. One can make the case that either is a source of American advantage, but the latter uniquely fits the zeitgeist. AI also promised faster decisionmaking in the face of massive missile barrages, though with one proviso: Without rail-guns or lasers, Army and Navy missile defenses would still only bring so many rounds, and those rounds would often be more expensive than the inbound ones.

The second issue is comparative advantage. Are autonomy and AI really areas of enduring American acumen, and specifically relative to Chinese? True, for decades, software has remained one of the most competitive U.S. industries globally.[44] But Work himself admitted that sustaining a long-term technological advantage will be much harder in this century than the last, for the premier-league adversaries are not the closed societies of the Cold War. Integrated into the global economy, they have access to the same commercial technologies as American industrialists, and much of the best work in autonomy and AI is now commercially driven. It is quite possible that Alphabet or Uber or Ford will create a reliable self-driving truck well before any defense contractor does. Their rewards for innovation are far greater.[45] For this reason, we can at least hope that the Defense Department will confine its research priorities to those applications with largely military utility. In the dual-use realms, industry will require much less financial enticement.

This also gets to the question of who is offsetting whom: great commitments to new technologies may not produce the intended winners. Consider some historical antecedents. The British Admiralty's opposition to steam propulsion in the 1820s may have been overblown in the retelling, but the leveling effect of the new technology was still threatening.[46] After they provided the example, could their enemies the French just steam across the channel in a surprise attack? In the 1930s, petroleum-poor Germany and Japan each developed military strategies that depended inexorably on petroleum. Perhaps more than oil fuels modern warfare, but offensive plans that depend on it do require it.[47] Today, as Josh Marcuse of the Defense Innovation Board has remarked, "software is eating the war"—demand for new electronic capabilities has been increasingly damaging affordability for decades.[48] Will investments in millions more lines of code lead to real breakthroughs or just more exquisitely complicated systems?

Choosing the wrong area of technological investment can then lead to pointless expenditure down dead-end pathways, or even costly new arms races. Lord Fisher's *Dreadnought* was a great accomplishment in 1906, but by rendering all other battleships obsolescent, it almost lent *Tirpitz* hope of catching up.

Only Wilhelmine Germany's geopolitical position rendered that forlorn. Thus, the Kaiser's peculiar naval obsessions would never do anything for his war effort. Instead, while underinvesting in the actually offsetting technology of submarines, his navalists built a High Seas Fleet (*Hochseeflotte*) that largely saw the side of a pier. Because Germany would never outbuild Britain in battleships, building any more than a few was self-defeating. Consider this in the context of another uncertainty: if autonomous systems offer the potential for faster decisionmaking in battle, they may raise the potential for successful preemption of enemies. Jensen thus worries that the Third Offset could produce another conceptual *Dreadnought*, ushering in an era of strategic instability.[49]

Rethinking the Theory of Victory

Finally, as in the 1950s, there may be a reorganizational imperative, particularly if the technologies of autonomy do not perfectly offset enemies' advantages. If advances in AI make autonomous precision weapons more capable against concentrated military forces, and those advances become generally available, then it could be the Chinese who wind up offsetting the Americans. Major American military expeditions still depend on iron mountains of supplies, the concentrated logistics of rail lines and cargo ships, the chokepoints of port facilities, and the high-value targets of large aircraft carriers and airbases. The ground troops still fight in formations similar to those that raced across France in 1944. Back then, the *Panzertruppen* arrayed against them failed to function well under sustained attack by the Ninth (U.S. Army Air Force) and Second (Royal Air Force) tactical air forces. Had those pilots been employing weapons like Joint Direct Attack Munitions and Brimstones, the results would have been ugly.[50]

Yet uglier could be the results of future attacks carried out by artificially intelligent hunter-killer robots. Work has assured us, of course, that humans will stay in the loop.[51] Perhaps the promise

Russian Sukhoi Su-24 attack aircraft makes low-altitude pass by USS *Donald Cook* as it conducts routine patrol in U.S. 6th Fleet area of operations, Baltic Sea, April 12, 2016 (U.S. Navy)

of all this man-machine teaming will fundamentally change the ways of war. Work has even gone further, stating that he is now "starting to believe very, very deeply that it is also going to change the *nature* of war."[52] Or perhaps Work's "war without fear" will eventually prove as elusive and amusing as Admiral Bill Owens's *Lifting the Fog of War*.[53] Either way, fighting through dense and intelligent threats to access may require more than grafting new technologies onto old platforms and sprinkling machine learning into existing formations. Surviving advancing lethality may require greater dispersion—a new Pentomic formation, but with modern command and control. Effect has long required concentration, but perhaps distributing lethality can compensate for this.

In the end, however, machine learning will be no substitute for organizational learning. Doing it right may require rethinking and expanding an

ethos of command by negation. The Army has been telling a good story about *Auftragstaktik* since the 1980s, but often honors it more in the breach than the observance.[54] Among the military Services, only the Navy uses the acronym *UNODIR* (unless otherwise directed), but the rest could learn it.[55] In turn, the resulting demands for individual initiative and skill placed on relatively junior officers may require a new approach to human capital development, as well as the hard institutional work of cultural change in the Armed Forces. This Third Offset may need some strategic lieutenants to master employment of its strategic capabilities. Secretary Carter's Force of the Future initiative sought to overturn the military's rather uniform and longstanding model for building human capital, but most of the elements concentrated on matters such as extending maternity leave and creating public-private work partnerships.[56] These may be laudable ideas, but

they do not directly produce new forms of combat units leveraging autonomous intelligent anything.

The fundamental question thus remains one of geographical disadvantage, in which asymmetric strategies from the far side of the Pacific can turn American technological strengths into weaknesses.[57] Simply put, "the United States is attempting to project power half a world away against a continental-sized power."[58] As a final alternative, we might then consider a completely different but very conventional approach. A competitive *military* strategy could take advantage of geography, rather than trying to cope with it. American forces' exposure to inbound precision weapons is exacerbated the further forward they stand. Against modern mobile missiles hiding in the hinterland, Lord Nelson's admonishment that any captain "place his ship alongside that of the enemy" is rather outweighed by British Admiral John Fisher's dictum

Student-researcher from Carnegie Mellon University remotely maneuvers quadrotor micro-air vehicle through narrow hallways of Naval Research Laboratory's ex–USS *Shadwell* to smoke-filled, GPS-denied area to identify fire's location and transmit data back to research team, Mobile, Alabama, November 5, 2014 (U.S. Navy/John F. Williams)

that "a ship's a fool to fight a fort."[59] China's maritime trade, however, may be quite susceptible to a rather distant blockade. If necessary, the United States could wage a "war of economic attrition to bring about a stalemate and cessation of conflict with a return to a modified version of the status quo."[60] Here, the SCO's recent thrust toward reviving the Army's coastal artillery could also be useful—and not technologically taxing.[61] All this at least constitutes a coherent, modest, and reasonably achievable theory of victory. Such a strategy would require no technological leaps forward, or any "fevered imaginations" of what the future might hold.[62] By imposing costs on the Chinese, it could be called an offset strategy, just not a technological one. It would simply require an honest appraisal of what aims existing methods and projected resources could produce. **JFQ**

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NDU Press is proud to support the annual Secretary of Defense, Chairman of the Joint Chiefs of Staff, and *JFQ* George C. Maerz essay competitions. NDU Press hosted the final round of judging on May 17–18, 2018, during which 29 faculty judges from 15 participating professional military education institutions selected the best entries in each category. The First Place winners in each of the three categories are published in the following pages.

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The 12th annual competition is intended to stimulate new approaches to coordinated civilian and military action from a broad spectrum of civilian and military students. Essays address U.S. Government structure, policies, capabilities, resources, and/or practices and to provide creative, feasible ideas on how best to orchestrate the core competencies of our national security institution.

First Place
Captain Kapil Bhatia, Indian Navy
U.S. Naval War College
"Coercive Gradualism Through Gray Zone Statecraft in the South China Seas: China's Strategy and Potential U.S. Options"

Second Place
Major Craig W. Thomas II, USMC
Marine Corps Command and Staff College
"The Casualty of Truth"

Third Place
Lieutenant Colonel Cory Brown, USAF
Dwight D. Eisenhower School for National Security and Resource Strategy
"Strategic Optionality for Defense Acquisition: An Alternative Management Approach for Major Defense Acquisition Programs"

Chairman of the Joint Chiefs of Staff Strategic Essay Competition

This annual competition, in its 37th year in 2018, challenges students at the Nation's joint professional military education institutions to write research papers or articles about significant aspects of national security strategy to stimulate strategic thinking, promote well-written research, and contribute to a broader security debate among professionals.

Strategic Research Paper

First Place
Sergeant First Class Daniel P. McGarrah, USA
College of International Security Affairs
"Military Medicine: The Gender Gap in Trauma Training"

Second Place
Colonel Robert Ellison Croft, USA
U.S. Army War College
"Understanding Uncertainty: Incorporating the Unknown into Military Estimates"

Third Place
Lieutenant Colonel Jason Glynn, USAF
U.S. Naval War College
"Is the Arctic a Blind Spot in U.S. Strategy?"

Strategy Article

First Place (Tie)
Major Edwin Y. Chua, Singapore Army
Marine Corps Command and Staff College
"Political Warfare with Other Means: 2017 Cyber Attacks on Qatar"

First Place (Tie)
Lieutenant Colonel Michael P. Wagner, USA
U.S. Army War College
"Peacekeepers in the Donbas"

Second Place
Matt Butram
College of International Security Affairs
"The NotPetya Attack as a Harbinger: How Cyber Attacks Create Risk to Strategic Mobility"

Third Place
Colonel Sean C. McMahon, USA
U.S. Army War College
"The Constitutional Divide be-
tween Covert Action and Traditional
Military Activity"

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Forum
James M. Davitch
"Open Sources for the Information Age:
Or How I Learned to Stop Worrying and
Love Unclassified Data,"
JFQ 87 (4th Quarter 2017)

JPME Today
Joan Johnson-Freese and Kevin Kelley
"Meaningful Metrics for Professional
Military Education,"
JFQ 84 (1st Quarter 2017)

Commentary
Darryl Williams
"Forensic Vulnerability Analysis: Putting
the 'Art' into the Art of War,"
JFQ 85 (2nd Quarter 2017)

Features
Gregory C. McCarthy
"Are There Too Many General Officers
for Today's Military?"
JFQ 87 (4th Quarter 2017)

Recall
Phillip S. Meilinger
"Time in War,"
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Twenty-nine senior faculty members from the 15 participating PME institutions took time out of their busy schedules to serve as judges. Their personal dedication and professional excellence ensured a strong and credible competition.

Front row, left to right: Mr. Robert Orr, National War College; Dr. Kristin Mulready-Stone, U.S. Naval War College, Dr. Richard DiNardo, Marine Corps Staff College; Dr. Benjamin (Frank) Cooling, Dwight D. Eisenhower School for National Security and Resource Strategy; Dr. Kenneth Johnson, Air Command and Staff College; Dr. Trevor Albertson, Air Command and Staff College; Dr. Margaret Sankey, Air War College; Ms. Bonnie Calabria, College of International Security Affairs; Dr. Kathryn Fisher, College of International Security Affairs; Dr. Larry D. Miller, U.S. Army War College. Back row, left to right: Ms. Andrea Connell, NDU Press; Ms. Joanna E. Seich, NDU Press; Commander Jeffrey Stebbins, USN; Captain Bill Marlowe, USN (Ret.), Joint Forces Staff College; Dr. William T. Eliason, Editor in Chief, *Joint Force Quarterly*; Dr. Brian McNeil, Air War College; Dr. Ryan Wadle, Air Command and Staff College; Dr. James Kiras, School of Advanced Air and Space Studies; Dr. Naunihal Singh, U.S. Naval War College; Mr. Jeffrey Turner, Joint Forces Staff College; Dr. Jim Chen, College of Information and Cyberspace; Dr. Jeffrey D. Smotherman, NDU Press; Dr. Charles C. Chadbourn III, Naval War College.

Not pictured: Dr. Robert Baumann, Command and General Staff College; Mr. Ray Damm, Marine Corps Command and Staff College; Mr. Jay Hatton, Marine Corps War College; Dr. Carl "CJ" Horn, College of Information and Cyberspace; Dr. Rebecca Johnson, Marine Corps War College; Dr. Wray Johnson, Marine Corps School of Advanced Warfighting; Dr. Sorin Lungu, Dwight D. Eisenhower School for National Security and Resource Strategy; Dr. Stephen Mariano, National War College; Dr. Nicholas Sarantakes, U.S. Naval War College.

Sailors signal to MV-22 Osprey during flight quarters aboard USS *Ashland*, East China Sea, March 10, 2017 (U.S. Navy/Kaleb R. Staples)

Coercive Gradualism Through Gray Zone Statecraft in the South China Seas

China's Strategy and Potential U.S. Options

By Kapil Bhatia

The supreme art of war is to subdue your enemies without fighting.

—Sun Tzu

Captain Kapil Bhatia, Indian Navy, wrote this essay while a student at the U.S. Naval War College. It won the 2018 Secretary of Defense National Security Essay Competition.

China's graduated use of coercive instruments of national power in the South China Sea (SCS) constitutes an informed strategy.[1]

Such coercive gradualism is supported by *gray zone tactics*, which are measures that are aggressive yet designed to remain below the threshold of

conventional military conflict.[2] This combined approach minimizes international involvement, localizes issues, and ensures contentious outcomes in China's favor. For smaller players in the region, this implies significant security, sovereignty, and economic challenges, especially due to their limited capacity to counter the sophisticated and integrated Chinese approach. At the same time, the U.S. approach of avoiding a stake in regional issues has resulted in partner/ally nations questioning American commitment. Absence of a comprehensive U.S. response also allows China to alter the regional geostrategic landscape immutably. Potential changes in SCS dynamics also have wider implications for U.S. and global security interests with implications for international sovereignty, jurisdictional frameworks, and global commerce. There is a need for broader recalibration of the American approach to comprehensively address coercive gray zone challenges posed by China in the SCS through articulation of a coherent strategy and orchestrated employment of all diplomatic, informational, military, and economic options.

Chinese Strategy in the SCS

Gradualism can be defined as principles or policies for achieving a goal by gradual steps, rather than by drastic change. As an international relations concept, *coercive gradualism* may be defined as a "state employing coercive instruments of national power in a synchronized and integrated fashion to achieve objectives by incremental steps."[3] Coercive gradualism allows states to advance their interests in incremental moves, as opposed to a single *coup de main*.[4] For China, coercive gradualism is a broader precept that informs its strategy across paradigms. Deng Xiaoping, paramount leader of the People's Republic of China, referred to gradualism as "fording the river by feeling for the stones."[5] This article, however, predominantly focuses on such approaches in the SCS.

China has consistently employed broader principles of coercive gradualism

in the SCS to further its interests. A chronological analysis of Chinese activities in the SCS reveals a cohesive and graduated strategy. Starting with simple firing incidents in 2005, Chinese strategy has sequentially and incrementally advanced to harassment actions from 2009, clashes from 2011, standoffs from 2012, and ship collisions post-2014.[6] Incremental fishing control—initially instituted as a ban in 2012—has graduated into a requirement for Chinese fishing permits since 2014.[7] Furthermore, all disputed territory in the SCS has been placed under the administrative control of Hainan Province.[8] China's declaration of an air defense identification zone (ADIZ) in the East China Seas in 2013, in airspace controlled by South Korea and Japan, is yet another example of creeping control. Analysts contend that China could attempt to implement similar identification zones in the SCS in the future in alignment with its overall gradualist aims.[9] Large-scale reclamation activities in the SCS constitute another example of gradualism, where artificial islands have incrementally altered the status quo, overcoming what John Mearsheimer alluded to as the "stopping power of water."[10] One scholar referred to this as "gradual *fait accompli*," stating that "We make a big deal of this now, but we'll forget about it after a while."[11] In effect, China employs a graduated strategy of coercive actions and outcomes in the SCS to advance its interests.

The unstated Chinese strategy of coercive gradualism in the SCS is actively supported, indeed enabled, by comprehensive gray zone tactics.[12] A U.S. Special Operations Command white paper published in 2015 defined the *gray zone* as "competitive interactions among (and within) States and non-State actors that fall between the traditional war and peace duality."[13] Gray zone tactics are an essential accessory to coercive gradualism, as risk management is a crucial element of gradualism. Since the purported end is to ensure that the "real or perceived reaction to incremental moves will not entail unacceptable costs," gray zone tactics activate the full potential of gradualism by supporting incremental moves through

acceptable costs.[14] China's gray zone strategy involves skillfully orchestrating political, military, and commercial instruments to influence, intimidate, and/or coerce target states, while containing such approaches below the threshold of unacceptable political costs or outright military provocation.[15]

While the gray zone concept is not new, it is the scale and sophistication of Chinese gray zone approaches that merit close attention. To be fair, several countries—including Russia, North Korea, and Iran—have effectively employed gray zone tactics over time. However, Chinese gray zone tools in the SCS are more comprehensive, coercive, and coordinated than similar strategies employed by other states in recent history. Some of the tactics include area domination, incremental fisheries controls, fishing zone denials, resource exploration in contested waters, cyber and information operations, and lawfare. Each activity is orchestrated to remain below a notional threshold to prevent broader regional/international consternation and response. The Chinese Maritime Militia, for instance, has undertaken activities that would qualify as classic military missions, such as patrols, access control, and kinetic engagements. Examples include the 2009 harassment of the USNS *Impeccable*, as well as the 2012 seizure of the Scarborough Shoal.[16] Yet the militia is a preferred tool, since there is a grudging admissibility to militia actions in comparison to full-scale military actions. Not surprisingly, the militia is referred to as the "third sea force of blue hulls" (after the navy's gray hulls and coast guard's white hulls), undertaking what the Chinese call a "war without gun smoke."[17] Use of the militia is combined with other gray zone tools, such as merchant ships, maritime surveillance vessels, fishing fleets, and information operations. Such tools signal "sea power as a 'continuum,' constituting a range of options, [where] even merchantmen and fishing boats can lay mines and monitor foreign warships."[18] Indeed, Chinese scholars view gray zone tools as legitimate means to further national aims. One scholar notes that the "approach can yet be regarded as a flexible method to settle

disputes. . . . Such actions are *normal and justified activities* for China within its own waters."[19] It is no surprise, then, that China is taking the maritime militia to new heights with vessels that include reinforced hulls, external rails to mitigate collision damage, and water cannons.[20] In effect, gray zone tactics constitute a conspicuous vector, supporting the broader Chinese strategy of coercive gradualism in the SCS.

Coercive gradualism combined with gray zone tactics is not an ephemeral approach, and China's strategic calculus dictates continued impetus to such approaches. Two key reasons underscore such impetus. First, graduated gray zone tactics are particularly favored by states pursuing revisionist aims, such as China, Russia, Iran, and North Korea. These states are "dissatisfied with the status quo and [are] determined to change aspects of the global distribution of power and influence in their favor."[21] At the same time, revisionist states do not wish to risk major escalation, but rather to employ a "sequence of gradual steps to secure strategic leverage."[22] These tactics present a way to challenge, and ultimately change, the way global politics work without entailing unacceptable cost and attention.[23] Second, China views the SCS with a strategic significance, the intensity of which is often underestimated. Just as Alfred Thayer Mahan argued that the Caribbean Sea and Gulf of Mexico were crucial to the United States in the early 20th century, China views control of the SCS as a prerequisite to its broader maritime resurgence. Mahan believed that "geography underlies strategy" and highlighted that the strategic value of any position depended on "its situation . . . strength . . . [and] resources."[24] Mahan also observed that certain regions "rich by nature and important both commercially and politically, but politically insecure, compel the attention and excite the jealousies of more powerful nations."[25] China views control over key locations within the SCS from a similar lens to avoid jealousies of other powers while underwriting its own security. In Mahanian parlance, China is incrementally altering the regional geography, adding strength and resources to

key locations through an unprecedented reclamation and militarization program.[26] As retired Major General Peng Guangqian of the People's Liberation Army pointed out during a U.S.-China Dialogue at the Naval War College in 2010, "Every inch of 'blue-colored territory' is extremely precious to China."[27]

Regional/International Commitments and Response

A crucial subtext of the gradualist gray zone approaches is the orchestration of issues so as to avoid strong regional/international opposition or response. In essence, the core intent is to minimize external interference, while systematically altering regional dynamics. One scholar notes that Chinese efforts "remain below thresholds that would generate a powerful U.S. or international response, but nonetheless are forceful and deliberate . . . to gain measurable traction over time."[28] Chinese rationale for creating 10,000-foot airstrips on artificial islands is, ostensibly, for a "better response to typhoons and other climate-related disasters."[29] Reclamation activities are projected by the Chinese as being insignificant, in addition to being based on precedence, since other claimants have also undertaken reclamation in the past. Yet reclamation activities, even though insignificant in isolation, are alarming in aggregate. From 2013 to 2015, for instance, China reclaimed 17 times more land over a period of 20 months than all other claimants combined over the past 40 years.[30] This includes approximately 95 percent of all reclaimed land in the Spratlys.[31] Even where regional mechanisms exist, China has attempted to sidestep its underlying spirit and erode its effectiveness through ambiguity and diversion. An example would be the 2002 Association of Southeast Asian Nations (ASEAN) Declaration on the Conduct of Parties in the South China Seas. The declaration requires parties to "refrain from inhabiting the presently uninhabited islands, reefs, shoals, cays, and other features."[32] Chinese reclamation and militarization activities have, nonetheless, continued

apace on prevaricate grounds such as "what activities should be 'frozen' have not been listed and stipulated definitely in the [declaration]."[33] The situation is aggravated by ASEAN's inability to bring about a consensus and consolidate its response, a situation often orchestrated by China itself, allowing Chinese strategies to continue unabated.

Even where a state may lodge a strong protest against the Chinese approach, China often disregards such concerns, provided that the response lacks adequate international traction or is not forceful enough. An example would be the landmark 2015 ruling of the Permanent Court of Arbitration (PCA) involving the Philippines and China over rights and responsibilities in the SCS. Even though the ruling was a legitimate international instrument in unequivocal favor of the Philippines, the Chinese simply rejected the ruling. An explanation of the Chinese stand lies in the scale and coherence of the international response to such an outcome. In the aftermath of the ruling, international pressure on the Chinese to admit that the ruling was muted failed to register as a conspicuous factor in Chinese considerations. With the international response, an entreaty—rather than an ultimatum—that China perceived was that the "reaction to [its] incremental moves" did not entail "unacceptable costs." Thus, the gradualist gray zone approach was preserved. This is especially relevant, given the limited Philippine capacity to impose costs upon the Chinese.

Alternately, analysis shows that whenever a concrete and forceful regional/international response is encountered, Chinese strategy is suitably revised and recalibrated. For instance, in 2004, when a Chinese submarine made its maiden submerged passage through the Ishigaki Strait, a sharp Japanese response forced China to retract from its position and express regret in public.[34] Similarly, China has not proceeded with the same island-building approach in the Senkaku Islands, due to an unambiguous U.S. articulation of Senkaku being part of the U.S. security umbrella to Japan.[35] A similar approach can be seen regarding Taiwan, where tacit U.S. involvement limits the

One of 24 Airmen on U.S. Navy EP-3 aircraft involved in April 1 accident with Chinese F-8 aircraft salutes as he departs C-17 Globemaster III, while en route to Hickam Air Force Base, Hawaii, April 12, 2001 (U.S. Air Force/Adrian Cadiz)

scope for Chinese gradualist gray zone actions.[36] Even where smaller players are involved, resolute action has sometimes forced China to recalibrate its approach. One example would be the 2014 Hai Yang Shi You 981 oil platform standoff between China and Vietnam, where China deployed its state-owned National Offshore Oil Corporation oil platform near the disputed Paracel Islands.[37] The incident involved an aggressive response to Chinese gray zone tactics by Vietnam. Vietnamese fishing boats and coast guard vessels collided with and used water cannons against Chinese fisheries enforcement/maritime militia vessels, based on similar practices employed by the Chinese. In the face of persistent and resolute action by the Vietnamese, the Chinese finally withdrew, stating that the exploratory work had been completed (even though most analysts contest this).[38]

In essence, the distinction between action and inaction on the part of the Chinese, in respect to its overall strategy in the SCS, may be attributed to the adequacy and coherence of the regional/international response to such incidents. In addition, the unambiguous intent and capability of concerned states to impose costs on Chinese actions is a significant factor. As the PCA ruling shows, Chinese admittance of such outcomes is contingent on the ability of the protagonists to pressure and persevere with outcomes. At the same time, the Hai Yang Shi You 981 standoff reflects the ability of a regional state (Vietnam) to persevere with its stand by imposing equivalent costs within the gray zone. A paradigm thus emerges, where international involvement and integral capacity of regional claimants are the key to containing Chinese gradualist gray zone approaches within the SCS.

The U.S. Stand

Given the need for a coherent and consolidated response to Chinese actions in the SCS, the absence of a U.S. response to graduated gray zone activities in the SCS has essentially given a free pass to Chinese actions. But before the absence of a U.S. response to issues related to the SCS is lamented, it is essential to critically examine the underlying causes and effects of such actions.

The broader U.S. reticence toward participation in SCS issues emerges from a principled stand to avoid a stake in regional territorial disputes, with the United States exhorting parties to resolve issues in a "manner consistent with international law."[39] In addition, the United States perceives that, other than the freedom of navigation enshrined in international law, SCS issues do not impinge on its core national interests. Thus, the U.S. strategy in the SCS is a conscious choice exercised within the politico-strategic context for nonparticipation in regional issues. Secretary of State Hillary Clinton had stated in 2012 that

Two B-52H Stratofortress bombers fly over Pacific as part of joint training mission near Japan over East China Sea in support of U.S. Indo-Pacific Command's Continuous Bomber Presence operations, August 2, 2018 (U.S. Air Force/Gerald R. Willis)

the "United States has been clear and consistent . . . we do not take sides on the competing sovereignty claims to land features in the South China Sea."[40] In 2016, Secretary of Defense Ashton Carter further reiterated that the "United States is not a claimant in the current maritime disputes in the Asia-Pacific, and takes no position on which party has the superior sovereignty claim over the disputed land features."[41] At the same time, the United States has reiterated its right to "fly, sail, and operate wherever international law allows."[42] Such a strategy on the part of the United States, however, presents several conundrums.

At the outset, while the United States reiterates that its interests lie only on issues involving international maritime jurisdiction and freedom of navigation (and not on territorial disputes), it must be remembered that the Chinese interpretation of maritime jurisdiction is linked to its claims to maritime territories.

In essence, China is slowly expanding its maritime territories, each of which beget an area of expanded maritime jurisdiction within the SCS. Furthermore, Chinese interpretation of international maritime jurisdiction, on which the United States clearly has a stake, remains deeply contested between the two parties. For instance, China interprets international law to exclude innocent passage within territorial waters, as well as surveillance and intelligence collection within exclusive economic zones.[43] In essence, China is employing coercive gray zone tactics to expand its control over maritime territories in the SCS, which would in turn assert expanded maritime jurisdictional control over wider swathes of global commons in the SCS. Thus, the U.S. stand inadvertently facilitates Chinese expansion of the nature and definition of international jurisdiction within the SCS, which eventually impinges on its core interests. The inefficacy of U.S. "freedom

of navigation" patrols need to be seen in this light, since China is in the process of consolidating its maritime territories before jurisdictional claims under international law can invite its full consideration. Once control of disputed maritime territories is complete, China may proceed to articulate a more limiting jurisdictional entitlement to the global commons associated with these territories. Clearly, China is playing the long game, not intending to challenge the U.S. peacetime freedom of navigation enterprise yet, but nonetheless preparing for a time when it must. A short-term myopia in the American strategy, thus, becomes evident.

A connected issue is that at a time when an effective response to graduated gray zone strategies requires deeper international commitments and exhortations, U.S. noninvolvement on SCS issues fails to reassure allies, with several seeking alternatives. Even though the United States has articulated its Rebalance to

Asia approach, allies perceive a mismatch between intent and action.[44] Regional states find the United States unwilling to act as a bulwark and the principal architect of coherent international consensus on SCS issues. This is no small issue in East Asia, where trust and consensus are key considerations, especially with the United States seen as an "outside power." A statement distributed by the Philippines Department of Foreign Affairs in 2015 read, "America has failed us."[45] General Benjamin Defensor, former Philippine chief of staff, stated in an interview that the United States will "not come to our aid . . . the Philippines [is] better off employing restraint and an appeal to world opinion."[46] South Korean and Japanese officials in Track 1.5 channels indicate "rising angst that gray-zone challenges may erode the credibility of U.S. commitments."[47] Not surprisingly, states find realignment with China an attractive proposition. As Robert Kaplan pointed out, in the "short run, a weaker American commitment to the region might result in the States on China's periphery bandwagoning with China."[48] Seen in this light, the Philippine "pivot to China" makes imminent sense. "America has lost it. . . . I [have] realigned myself in your [Chinese] ideological flow," proclaimed President Rodrigo Duterte during the keynote address at the Philippine-China Trade Forum in Beijing in October 2016.[49]

A linked issue is that even when the United States has responded, there are noticeable inconsistencies in the response, which are not lost upon allies. An example would be the declaration of the East China Sea ADIZ in November 2013. The U.S. military expressed "deep concern" at the unilateral action, and B-52 long-range bombers flew sorties through the ADIZ to demonstrate resolve. At the same time, the Federal Aviation Administration (FAA) issued Notice to Airmen instructing U.S. civil aircraft to comply with China's ADIZ.[50] While such inconsistencies may be difficult to reconcile, it must be seen in light of the absence of a broader U.S. strategy on dealing with graduated gray zone challenges. Seen in his context, the

military rightly attempted to restore the status quo ante (through statements and B-52 sorties), while the FAA focused on aviation safety. A strategic reassignment and recalibration of the U.S. approach may, thus, be in order.

At a more abstract level, the U.S. stand on SCS issues also goes beyond the superficial to a more profound issue underlying the contest between a great power and rising power. Analysts see the declining U.S. engagement in the SCS as one of the possible symptoms and deeper verdict on retrenchment of a great power. Two U.S. scholars argue that whenever the "power, authority, and legitimacy of the existing order is challenged, retrenchment by the leading power marks an inflection point in the decline and eventual fall of the leading power."[51] At the same time, other scholars see broader gray zone challenges—to include Russian, Chinese, Iranian, and North Korean endeavors—as a means to challenge the current U.S.-led international order. Gray zone adversaries constitute a "globalizing insurgency challenging the foundational regime of the current advanced industrial nation-state-based (and largely Western) international system and order."[52] The developing security matrix in the SCS, thus, calls for a deeper reassessment of U.S. strategies and priorities in the region.

The Need for a Strategy
The more difficult question is what are the options in such a scenario. It may be argued that the United States has limited options to tackle such issues. To address this aspect, the following discussion offers certain options/recommendations.

At the outset, the U.S. approach to the SCS needs to transcend from mere tactical expedients into a broader and more comprehensive strategy. In essence, there is a need for a broader conceptual recalibration of U.S. strategy to tackle graduated gray zone tactics posed by various powers. Three aspects underscore such recalibration: acceptance, articulation, and application.

Acceptance is the recognition that Chinese gray zone approaches necessitate

a U.S. response, but current responses are inadequately oriented to counter the threat. The U.S. military remains oriented to war and peace dualities, while gray zones operate between two absolutes. In effect, the black-and-white Western approach to conflict "creates the very gaps and seams gray zone adversaries pursue and exploit."[53] There is also an asymmetry in risk perception, where decisionmakers are "hypersensitive to the hazards associated with potential escalation in the gray zone and [thus] more conservative in response to gray zone competition."[54] Authoritarian regimes are also better equipped at executing gray zone strategies in comparison to democratic checks-and-balances systems where power is diffused and decisionmaking is dispersed.[55] Gray zone issues also create a sense of persistent conflict, which is anathema to democratic systems anchored to traditional concepts of war and peace.[56] Thus, the United States, having unarguably the most capable military in the world, may not be poorly equipped, but poorly *oriented* to deal with such challenges.[57] This reinforces the need for acceptance of gray zone conflict as a distinct category of state-on-state action.[58] Japan, for instance, has identified the gray zone in its 2014 annual defense white paper as "situations neither purely peacetime nor contingencies."[59] Similarly, Australia has flagged gray zone actions, such as reclamation and selective interpretation of maritime law, as areas of concern, necessitating concerted response.[60]

The next step in creating an overarching strategy involves unambiguous *articulation* of intent to challenge such approaches. This includes defining clear red lines in gray zone scenarios where necessitated by national interests. The breach of a red line must be responded by escalatory, multidimensional, cost-imposing measures. It must be remembered that gradualist gray zone approaches thrive in the absence of red lines. Island-building, ADIZ declaration, and disregarding PCA ruling are all examples where a red line—or a retaliatory response—was not articulated. A clear red line, as was achieved during the

Sailor takes bearing as USS *Dewey* conducts replenishment-at-sea with USNS *Henry J. Kaiser*, Pacific Ocean, July 16, 2018 (U.S. Navy/Devin M. Langer)

Cuban Missile Crisis or Russian intervention in Ukraine, asserts that "noticeable punishments [would] be imposed on an aggressor who flouts international norms with their gray zone revisionism."[61] There are obvious consequences for perpetrators, which are particularly effective if the protagonist does not intend irreversible consequences, China being an example.

The last aspect is *application*. Gray zone actions are often shrouded in ambiguity and plausible deniability, making them difficult to counter. Dispelling ambiguity and demanding clarity from potential actors help narrow the problem and invoke red lines to penalize such actions. One example would be presenting firm evidence to the international community of Russian-backed separatists' downing of MH-17 over Ukraine, paving the way for harsher sanctions against Moscow.[62] This was in light of outright Russian disassociation with the event. Application requires confronting initiators with proof, supported by a

commitment to enforce red lines. Such a move clearly requires a broader international consensus to be effective, a facet that gray zone tactics aim to avoid in the first place.

Apart from conceptual reorientation, it is apparent that present responses to gray zone challenges invariably involve pure military instruments. Yet, such an approach is flawed because gray zone actions aim to invoke the quasi-military and nonmilitary aspects of a situation. Any response through military means, therefore, suffers from an inadvertent escalation and response mismatch to begin with. There is an overarching need to integrate options beyond the U.S. Department of Defense alone. A coordinated whole-of-government approach becomes imperative to tackle graduated gray zone actions, with appropriate integration of all instruments of national power.

Diplomatic Measures. At the diplomatic level, there is a need to shore up greater international support

for legitimate regional concerns and highlight irresponsible graduated gray zone measures by parties concerned. Statements such as "our commitment to the Philippines is ironclad" may be inadequate, absent cogent international support for the core interest of the partner involved, such as the outcome of the PCA arbitration in the case of the Philippines.[63] The U.S. "three halts" diplomatic approach, which required parties to halt reclamation, construction, and militarization on disputed features in the SCS, may need to be reinvigorated.[64] There may also be a need for a legislative backing to coordinated U.S. response to gray zone tactics in the region. Among these, the Asia-Pacific Maritime Security Initiative Act of 2016, which recalibrates U.S. commitment to that of an actor in the SCS, may need to be pursued.[65] The bill, pending with the U.S. Congress, mandates that the U.S. military routinely enforce America's right to freedom of navigation in the waterways of the Asia

Pacific and authorizes greater U.S. assistance to Southeast Asian states. Speed of action may be important considering the fact that the time involved in passage of the draft bill in the U.S. Congress has been more than the time taken by China to reclaim over 3,000 acres of land in the SCS.[66]

Informational Measures. The $425 million Maritime Security Initiative under the National Defense Authorization Act of 2016 involves the creation of a shared maritime information network for Southeast Asia. Early conclusion of the initiative would overcome informational gaps faced by partner nations.[67] The United States has also pledged enhanced support to countries with claims in the SCS by "publicly disseminating information about China's activities at sea," an intent that needs concerted follow-up action.[68]

Military Engagement. Numerous measures could be considered in the military domain. At the outset, conventional U.S. forces would need to be structured, trained, and equipped to handle gray zone activities. U.S. forces would be required to operate within the gray zone with speed, purpose, intent, and resolve.[69] Synchronization of the overall effort would need to be continually steered by combatant commanders, who need to be empowered to operate against active gray zone competition with new capabilities and agile models for campaigning.[70] At the same time, the United States could consider building "counter–gray zone capabilities" among partner nations to tackle such challenges. The aim would be to progressively reinforce the futility of gray zone actions by perpetrators by building partner capacity. These could include developing information operations—such as cyber capabilities to shape perceptions and highlight issues—and counter–gray zone capabilities through assets (fast patrol boats, coastal radar chains, surveillance capabilities, small unmanned aerial vehicles), counter-militia forces, reclamation capability, and outpost-building capability, for example.[71]

Diversifying military partners for regional nations, including Australia, India, and Japan, would strengthen

USS *Ronald Reagan* and *Izumo*-class helicopter destroyer JS *Izumo* break formation during combined Japan Maritime Self-Defense Force and U.S. Navy exercise, South China Sea, June 15, 2017 (U.S. Navy/Nathan Burke)

regional integration as well as minimize U.S. involvement.[72] Indonesia, Malaysia, and the Philippines have recently signed an agreement for joint patrol of maritime borders to thwart piracy and militancy in the region. Extending such cooperation to counter regional gray zone postures could be considered.[73] Closer coast guard–to–coast guard ties could promote a nuanced approach to gray zone threats in lieu of more kinetic and conspicuous navy-to-navy ties.

Another line of effort could include better access to island territories. Several sea areas in the SCS remain uncharted, with hazards to navigation and limited communication facilities.[74] Better access to such areas, dredging operations, and charting of these areas could overcome some of the Chinese advantages in the gray zone. Additionally, there is a need to assist regional navies in building capacity for increased maritime domain awareness, along with intelligence, surveillance, and reconnaissance operations.[75] U.S. Special Operations support remains focused on foreign internal defense, apart from security cooperation and train-and-equip

missions. Such cooperation could be diversified to counter gray zone activities, such as combat search and rescue, night capability, maritime interdiction capability, visit-board-search-seizure capabilities, and so forth.[76]

Economic Measures. Economic penalties for those actors pursuing graduated gray zone tactics constitute a visible and effective deterrent. Russian hybrid warfare activities in Crimea, for instance, were countered through economic sanctions.[77] In addition, funding support could be considered for states seeking to shore up their defensive capabilities against gray zone challenges.

The evolving security situation in the South China Sea is complicated by graduated strategies adopted by China that utilize coercive instruments of national power. These instruments operate in the gray zone, ensuring incremental gains without invoking an escalatory response or international intervention. The time-space synchronization of these approaches is such that they appear as incidents, instead of a series of

interconnected and cohesive elements. Furthermore, limited U.S. intervention has enabled China to successfully impose measures on smaller regional players. Limited response capability among smaller nations has considerably altered regional dynamics, to the detriment of regional players, and also broader international norms. Due to the detrimental impact of such strategies on sovereignty, maritime jurisdictional frameworks, and global commerce, there is a need for wider recalibration of the U.S. approach to gray zone tactics. The United States needs to play a more proactive role in assisting regional players in countering China's broader strategy of coercive gradualism and gray zone tactics. Toward this, apart from broader conceptual recalibration, the United States needs to implement institutional changes to respond to gray zone activities, along with whole-of-government engagement on specific diplomatic, informational, military, and economic elements. **JFQ**

Notes

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- Standoffs. April 2012: Standoff between Philippine warship *Gregorio del Pilar* and two Chinese surveillance vessels in the Scarborough Shoal. See "China, Philippines Locked in Naval Standoff," CNN, April 11, 2012, available at <http://edition.cnn.com/2012/04/11/world/asia/philippines-china-naval-standoff/index.html>.

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[14] Pierce, Douds, and Marra, "Countering Gray Zone Wars," 52.

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Combined Air Operations Center at Al Udeid Air Base, Qatar, provides command and control of airpower throughout Iraq, Syria, Afghanistan, and 17 other nations (U.S. Air Force/ Joshua Strang)

Political Warfare with Other Means
2017 Cyber Attacks on Qatar

By Edwin Y. Chua

It's one of the great paradoxes of our time that the very technologies that empower us to do great good can also be used to undermine us and inflict great harm.

—**President Barack Obama**

Major Edwin Y. Chua, Singapore Army, wrote this essay while a student at the Marine Corps Command and Staff College. It tied for first place in the Strategy Article category of the 2018 Chairman of the Joint Chiefs of Staff Strategic Essay Competition.

On May 24, 2017, Qatar's state news agency reported that Qatari Emir Tamim bin Hamad Al Thani supported Hamas, Hizballah, Iran, and Israel.[1] In response, Saudi Arabia, the United Arab Emirates (UAE), Bahrain, and Egypt cut off rela-

tions with Qatar, a fellow member of the Gulf Cooperation Council (GCC).[2] The four countries released a list of 13 demands that aimed to align Qatar's national policies with that of other Gulf and Arab countries.[3] However, Qatar's state news agency quickly disavowed the report on its Web site and Twitter account and attributed it to a cyber attack.[4] The attack on Qatar's state news agency to promulgate false and misleading information marks a new phase in the use of cyber means for political warfare. An analysis of the goal, target audience, and means of this cyber attack, as well as the results of the attack and the implications of evolving technologies, suggest that defending against such attacks requires a multifaceted effort from individuals, organizations, governments, and the international community.

Political analyst Graham Fuller, a former vice chairman of the National Intelligence Council at the Central Intelligence Agency, postulates that the aim of the 2017 cyber attacks was to compel Qatar to align its foreign policy

with Saudi Arabia, end its good relations with Iran, cut off military ties with Turkey, and terminate its support for al Jazeera news network.[5] Qatar has close diplomatic ties with Iran because they jointly exploit the South Pars natural gas fields.[6] In 2014, Qatar signed a defense agreement with Turkey and agreed to allow Turkey to establish a military base in Qatar.[7] Fuller explains that these international ties allowed Qatar to chart its own foreign policy independent of Saudi Arabia. In the aftermath of the Arab Spring, which threatened the rule of authoritarian leaders in the region, many Arab leaders saw al Jazeera's news channels as threatening to their control of information in the region.[8] The target audience of the cyber attack was not only the political elites in Qatar, but also the leaders of other countries in the GCC (that is, Kuwait and Oman) and key decisionmakers in the United States. By highlighting Qatar's close ties with Iran and Hamas, a U.S.-designated terrorist group, the bogus news reports aimed to politically isolate Qatar from the United States. The other GCC states were expected to rally along religious lines to support the Saudi coalition, which adheres to the Sunni branch of Islam, against Iran, a Shiite state.

To reach these audiences, the UAE, as part of the Saudi coalition, enacted a program of cyber attacks into Qatar's state news agency to insert false news reports. Hackers began their operation in April 2017, gaining total control of the Qatari News Agency's network, email accounts, Web sites, and social media platforms.[9] This control was used to disseminate false information from May 24 to May 25, before the state media's information technology experts were able to regain control.[10] The cyber attacks supported a broader campaign that included all elements of national power including diplomatic, military, and economic efforts. After the attack, the Saudi coalition severed diplomatic ties and gave Qatari citizens 14 days to leave their territory while banning their own citizens from traveling to or residing in Qatar.[11] Under diplomatic pressure from Saudi Arabia, countries such as Yemen, Maldives, and

Libya severed their diplomatic ties with Qatar.[12] The Saudi coalition also closed their airspace to Qatari aircraft and banned all ships flying the Qatari flag or serving Qatar from docking at any ports.[13] Saudi Arabia closed Qatar's only land border as well.[14] These efforts on land, sea, and air aimed to cut off Qatar's supply routes and threaten its economy.

Less Than Success

Despite the use of all elements of national power, the Saudi coalition did not succeed in achieving its aim of isolating Qatar from the GCC and the United States. Qatar did not give in to the 13 demands presented by the coalition.[15] In the immediate aftermath, the U.S. Secretary of State called for the crisis to be resolved diplomatically, while the U.S. Department of Defense and Ambassador to Qatar publicly praised Qatar for hosting the al Udeid Air Base and its commitment to regional security.[16] Kuwait and Oman, the other two members of the GCC, did not cut off their diplomatic ties with Qatar. Less than a month after the hacks against Qatar, U.S. intelligence officials attributed the cyber attack to the UAE and stated that the attacks had been directed by senior members of its government.[17] The land, sea, and air blockades did not have a significant impact, as Turkey and Iran sent food and basic supplies directly to Qatar.[18] Turkey also sent more military forces to its base in Qatar in order to deter any Saudi military action.[19] The failure of this cyber attack, despite the close coordination of all instruments of national power, supports the theory posited by some cybersecurity researchers that states using cyber attacks rarely achieve their intended objectives, and successful compellence could require the overwhelming national power of countries like the United States.[20]

However, while the ploy to isolate Qatar was exposed, there has not been any public censure or consequences to the UAE for its conduct of the cyber attacks. The lack of consequences for the UAE could set a precedent and embolden future adversaries to leverage

cyber attacks in support of political warfare. The proliferation of such attacks could indicate that the "strategic logic of cyber is shifting to one of disruption and constant harassment designed to signal capability and the threat of escalation."[21]

Looking Forward

Future cyber attacks and information operations would exploit the development of software that could manipulate voice and video. In November 2016, Adobe, a company known for its Photoshop software, unveiled Project VoCo, a program that makes it possible to take an audio recording and alter it to include words and phrases that the original speaker did not say, in the voice of the original speaker.[22] Another company, BabelOn, is developing software that can translate a person's voice into another language instantly.[23] Researchers at the University of Washington are experimenting with the use of artificial intelligence (AI) to convert audio files into realistic mouth movements, which could be used to falsify videos of public personalities giving speeches.[24] The widespread use of such technologies would blur the lines between truth and falsehood, allowing malicious actors to conduct a persistent campaign of distortion to smear the reputation of certain world leaders or countries in order to reduce their soft power and influence over time.

A strong, multifaceted defense is needed against the abuse of such new software and AI. This defense will require action by individuals, organizations, governments, and the international community. Adobe's acknowledgment of the potential abuse of its software is a good step toward building public awareness to inoculate individuals against insidious influence campaigns. More effort should also be focused on developing software that can detect such voice and video manipulation quickly. Learning from the experience of Qatar, governments and organizations should be prepared to embrace transparency and quickly report cyber attacks when they occur to shape the narrative, clarify the position of the government or organization, and prevent

the spread of distorted information. Governments and organizations should also be consistent in their public outreach efforts to prevent any misunderstandings from being exploited during a crisis through the use of fake photos, videos, or sound recordings. One example of this can be seen in the Summary of the 2018 United States National Defense Strategy, which calls on the United States to be "strategically predictable" in demonstrating its commitment with allies to deter aggression.[25] Additionally, there should be an increased effort to strengthen international norms against such forms of cyber attack and to increase the costs to countries conducting such attacks. The NATO Cooperative Cyber Defense Center of Excellence in Estonia, which has released two Tallinn Manuals on cyber conflict, is one such organization that could help to develop such cyber norms.[26]While the cyber attacks on Qatar were ultimately unsuccessful, they marked a new use of cyber means to distort information. This use of cyber means could become increasingly common, especially as technological advances make it easier to conduct such attacks and falsify or distort information, and the risks and downsides of being caught remain low. The United States should build public awareness of such threats, enhance its public diplomacy efforts as a preemptive measure, and leverage its allies and partners in the international effort to establish norms against such activities. It should also censure the countries conducting such activities, when appropriate. This preemptive approach will establish norms for the appropriate use of cyber and contribute to the protection of the United States and its allies. **JFQ**

Notes

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Eastern Ukrainian woman, one of over 1 million internally displaced persons due to conflict, has just returned from her destroyed home holding all her possessions, on main street in Nikishino Village, March 1, 2015 (© UNHCR/Andrew McConnell)

Peacekeepers in the Donbas

By Michael P. Wagner

Since the conflict in Ukraine began in 2014, over 10,000 people have died in the fighting between Russian-backed separatists and Ukrainian forces in the Donbas region of Eastern Ukraine. The Ukrainian government has repeatedly called for a peacekeeping mission to halt the bloodshed, so Russian President Vladimir Putin surprised the world on September 5, 2017, when he proposed introducing peacekeepers into Eastern Ukraine to protect the Organization for Security and Co-operation in Europe–Special Monitoring Mission to Ukraine (OSCE-SMM). Despite halting progress since that time, restarting a peacekeeping mission remains an important opportunity.[1] Many experts remain wary and dismiss it as a political ploy; they have suggested calling Putin's bluff. However, they also realize the idea of a properly structured force with a clear mandate operating in support of an accepted peace agreement could offer a viable path to peace that is worth exploring.[2]

Putin envisions a limited deployment of peacekeepers on the existing line of contact in Donbas to safeguard OSCE-SMM personnel.[3] Such a plan could be effective in ending the conflict and relieving immediate suffering, but it could also lead to an open-ended United Nations (UN) commitment and make long-term resolution more challenging. Most importantly, freezing the conflict in its current state would solidify Russian control of the separatist regions, enabling it to maintain pressure on Ukraine by adjusting the intensity level as it desires. This plan would also prevent the Ukrainians and Russian-backed separatists from implementing many of the Minsk II Accord tenets—including instituting

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constitutional reforms and reestablishing control of sovereign borders—effectively blocking Ukraine from seeking North Atlantic Treaty Organization (NATO) membership.[4] A more comprehensive peacekeeping mission than Putin's could address these issues and ease Russia's economic and governance burdens, return sovereignty to Ukraine, and deliver important constitutional reforms to the people.

The existence of a legitimate peace agreement is rightly considered one of the key components of a successful peacekeeping operation.[5] The Minsk II framework must be updated to address outstanding questions such as sequencing actions and authorizing a peacekeeping force with an international civilian administration. The mandate of the force should be tailored to match its size and capabilities to avoid creating unrealistic expectations.[6] Operating with the consent of all parties under a viable peace agreement, this force would primarily deploy under Chapter VI of the UN Charter. It would also require Chapter VII authorization to compel compliance with the peace agreement; protect civilians; oversee the return of Ukraine's estimated 1.7 million internally displaced persons (IDPs); and safeguard critical civilian infrastructure to include roads, gas and oil supplies, and power distribution facilities.[7] The force cannot effectively perform these missions if it is limited to operating solely along the line of contact. The force must have sufficient capacity to secure the international borders, the separatist areas of Luhansk and Donetsk, and a 75-kilometer (km) artillery buffer zone on the Ukrainian side of the line of contact. This broader geographic area and a Chapter VII authorization in the mandate would give the mission a credible capability to respond to violations and address issues that flair up. The existing OSCE-SMM of 1,078 personnel, including 600 monitors from 44 countries, should remain in place and integrate with the UN peacekeeping force for protection as it executes its mission, expands its reach, and verifies compliance.[8]

Perhaps the most critical component of the agreement would be an interim civilian administration (ICA) to maintain control of the separatist regions during the transition. An ICA would fill the void in local governance while the Ukrainian parliament would amend the constitution to implement the decentralization requirements of Minsk II and necessary political changes to form legitimate local governance structures throughout the Donbas.[9] The former UN Transitional Administration for Eastern Slavonia, Baranja, and Western Sirmium in Croatia after the Balkan wars offers precedence for such a transitional authority under UN auspices.[10]

Most discussions of the appropriate size of peacekeeping and counterinsurgency forces focus on force-to-population ratios with minimal concern for other considerations such as terrain, lengths of borders, population density, and the existence of a legitimate peace agreement.[11] These analyses are also not particularly well grounded in history.[12] The most commonly cited ratio of forces to population is 20:1,000, with others suggesting ratios as low as 2.8:1,000, depending on levels of violence.[13] Donetsk and Luhansk have a combined total of approximately 7 million people and 53,200 square km representing approximately 15 percent of Ukraine's prewar population and 9 percent of its territory, along with a significant amount of its industrial capacity.[14] The separatist-controlled portions account for an area roughly the size of Kosovo or one-third of the 53,200 square km of Luhansk and Donetsk, with an estimated 2.8 million people still in separatist areas.[15] Assuming that up to 1.2 million of the estimated 1.7 million IDPs return to the Donbas, the peacekeeping force could be responsible for a population of up to 4 million people. Using pure ratio-based calculations, the size of a peacekeeping force could range from 11,200 to 80,000.

With this as a general range, we must also consider the other factors that could complicate or simplify the mission. Key issues that tend to warrant a larger force include the dense urban terrain in several major cities, an international border of just over 400 km, and a line of contact approximately 500 km long, with around 90,000 heavily armed combatants facing each other.[16] Countervailing trends that will dramatically reduce force requirements include the existence of a peace agreement, relatively open agricultural land outside the cities, and limited ethnic tensions. Additional challenges a force might face would likely include criminality, conflicts surrounding returning IDPs, and the remnants of separatist and nationalist militias as well as any stay-behind Russian elements. Based on these factors, a force of approximately 20,000 peacekeepers would be suitable, if appropriately organized and outfitted. It would require a wide variety of capabilities, including unmanned aerial vehicles to help patrol the borders, rotary-wing aviation assets, target acquisition radar to identify any indirect fire attacks in violation of the peace agreement, and a robust intelligence analysis and fusion capability to better share information and ensure more focused and effective employment of the force. The mission should include civilian police and a military formation consisting of a mix of armor and infantry forces to ensure sufficient manpower to patrol the urban areas and sufficient firepower to protect itself and the mission. Twenty thousand troops would be sufficient to field two brigades of peacekeepers in each *oblast*, or region, with a headquarters staff and the additional enabling capabilities. To put this in context, it is nearly the same number of troops as in the International Security and Assistance Force's Regional Command East during the Surge in 2010–2011 for about half of the population, just over one-tenth of the land mass, less challenging terrain, and a more permissive threat environment.[17]

Identifying troop-contributing countries that have sufficient capacity to execute a mission and are acceptable to all parties involved will be challenging. One option is to recruit from non-NATO, OSCE member countries to avoid placing NATO troops close to Russia's borders, or relying on Russians to enforce a peace in a conflict that they are a party to. If NATO or Collective Security Treaty Organization countries participate, it must be proportional. Another option would be to select a power like Brazil or

India to lead the mission. Their participation could expand economic opportunity in Ukraine and help guarantee Russian compliance out of fear of angering another power. Ukraine would welcome any boost to its development efforts as it attempts to recover from the conflict and seeks to disarm, demobilize, and reintegrate tens of thousands of fighters. In either case, OSCE monitors would be present to help assure the peace is being fairly enforced, and the interim civilian administrative authority would still be responsible for administering the separatist regions.

Vladimir Putin's proposal to introduce a peacekeeping force into Ukraine might be disingenuous, but with thoughtful modifications it could promise Eastern Ukraine a real opportunity for peace. The mandate must include Chapter VII authority and be carefully designed to implement and enforce a mutually agreeable and beneficial solution to the conflict, including a transitional administration. A force of approximately 20,000 peacekeepers that is appropriately equipped with key capabilities would be robust enough to deter any violators and maximize the effectiveness of a relatively small force. Several questions must still be addressed, such as the phasing of the peacekeeping force's deployment, structure of the interim civilian administration, and role of the relevant international organizations and specific authorities. A properly structured force with a clear mandate, however, could offer Ukraine and Russia a welcome opportunity for peace. **JFQ**

Notes

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Marine with Combat Logistics Battalion 31, 31st Marine Expeditionary Unit, prepares to print 3D model aboard USS *Wasp* while underway in Pacific Ocean, April 7, 2018 (U.S. Marine Corps/Bernadette Wildes)

Additive Manufacturing
Shaping the Sustainment Battlespace

By Michael Kidd, Angela Quinn, and Andres Munera

There is widespread interest and a level of euphoria surrounding the potential benefits of bringing additive manufacturing (also known as three-dimensional printing [3D printing]) to the military logistics tool kit. The technology has tremendous potential, with new uses being demonstrated weekly. In addition to mundane items such as novelty bottle openers, the Navy recently printed a carbon fiber submersible.[1] The Defense Logistics Agency is working with industry to print hard-to-source parts and is experimenting with printed food—and printed human organs are finding their way into the medical field.[2] It is important, however, to fully understand the enabling factors that will make the technology a useful part of the Department of Defense (DOD) supply chain and not simply an impressive application that ends up at best a fleeting initiative, and at worst an incredible drain on scarce resources and a public embarrassment.

Additive manufacturing and the ability to create single- or small-batch runs of parts should be managed carefully to ensure that this technology is deployed as a force multiplier versus a niche program with limited readiness impacts. Initial pilot programs are in place across several

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of the Services to provide feedback on how this equipment is working in the field. Specifically, the Army Breaching Tools, 3D printers on deployed aircraft carriers, and mobile radio solutions provide insight into the use of this technology, as they are already fielding additively manufactured resources.[3] While these programs have tapped into the innovative spirit of Servicemembers to solve unit-level problems, they have not yet provided enterprise solutions to sustain critical systems.

With an understanding of the potential positive results such as cost avoidance, reduced inventories, and time to deliver, as well as the challenges of implementation, acquisition and sustainment programs can transition DOD 3D printing capabilities into readiness multipliers. Additionally, updates to guidance are required to ensure officials are actively shrinking the supply chain through investments in additive manufacturing and just-in-time manufacturing as part of their overall acquisition strategy. Focusing on the manufacture of parts to increase systems sustainability, we examine costs and cost avoidance, supportability, and technical limitations in order to develop constructs for when to implement at various levels. The current DOD roadmap concentrates on technology development rather than enabling factors.[4] Therefore, this article identifies those factors that contribute to a methodical approach to additive manufacturing in support of DOD sustainment.

Industry Overview

Additive manufacturing uses several methods to produce exceptionally thin layers of material that are stacked on top of each other (added) and then fused together using a power source to create 3D items. Conversely, many traditional manufacturing methods like casting and forging are subtractive, removing excess material and creating waste in the production process.[5] Though still an emerging technology, 3D printing has several advantages over traditional methods of production. For instance, the micron-thin width of successive layers allows the creation of geometries

not formerly possible.[6] Also, advances in material and bonding of layers create higher end quality-controlled products that include critical high-significance items such as aviation valves whose failure could have catastrophic consequences.

Significant technological advances in 3D printing have occurred over the past several years. In the decades before 3D printing, prototypes were designed using modeling techniques, or low production runs, which were expensive and time consuming. Today, with the use of computer-aided design (CAD) techniques, additive manufacturing is capable of producing prototypes, and even fully capable items, faster and at lower costs, allowing for rapid development of technologies. As the technology matures, there is a shift from merely a prototyping niche, morphing into low production runs, to large batch runs. Industry wide, 3D printers are now producing nearly one-third of items for end use.[7]

Still a nascent technology, 3D printing of parts on demand has not taken a foothold in terms of gross capacity, consisting of less than 1 percent of industrial production. However, looking at those dipping their toes into the technology across the commercial spectrum, the automotive, medical, and aerospace industries are early adopters, consisting of nearly 50 percent of commercial additive applications.[8] The medical field's engagement is still fairly close to prototyping, as they are taking advantage of the capability to create unique prosthetics and fitted medical devices such as hearing aids and orthodontia. Conversely, automotive manufacturers have been pushing the technology past its initial low run limitations. General Motors is producing larger components, including bumpers and spoilers, while firms such as EDAG Engineering and the BLM Group have moved additive manufacturing from a minor part of the supply chain to additively manufacturing close to entire concept cars.[9] Utilization on a handful of automotive assembly lines notwithstanding, the technology is still predominantly defined by its ability to produce goods without high-cost molds and castings,

while setup costs are kept at a minimum, providing the flexibility to produce various components on a single machine.

Of particular interest to the military supply chain is the experience of aerospace corporations. Companies such as General Electric (GE) and Boeing have taken advantage of additive technologies to produce complex geometries that are difficult and expensive to manufacture under legacy technologies. GE Aviation is printing fuel nozzles, and the National Aeronautics and Space Administration is examining which rocket engine parts could be additively manufactured.[10] Currently, the manufacture of these parts involves low production runs that require significant investments in machine tools, which are thereafter underutilized. Furthermore, the quest for weight reduction has brought expensive materials into the manufacturing process. When titanium or other high-value materials are applied additively versus using subtractive manufacturing processes, which waste costly raw materials, companies can realize significant cost savings.[11]

Potential Benefits

Following 15 years of war, and the $5.6 trillion in treasure expended, there is more pressure than ever to find efficiencies, cut costs, and redefine the way business is conducted across DOD.[12] So pervasive is the pressure to reform business practices that Secretary of Defense James Mattis lists "bringing business reforms to DOD" as one of his top three priorities, along with strengthening partnerships and rebuilding warfighting readiness.[13] Three-dimensional printers offer the promise of creating items constrained only by imagination. The goal of producing parts on demand promises to eliminate time, costs, and infrastructure while contributing significantly to readiness levels.

Large production runs currently benefit from the speed and economies of scale of more traditional manufacturing methods, such as injection molding (which are able to distribute capital costs over high numbers of units).[14] As 3D printers develop, large batch runs will become more affordable. The maturing industry
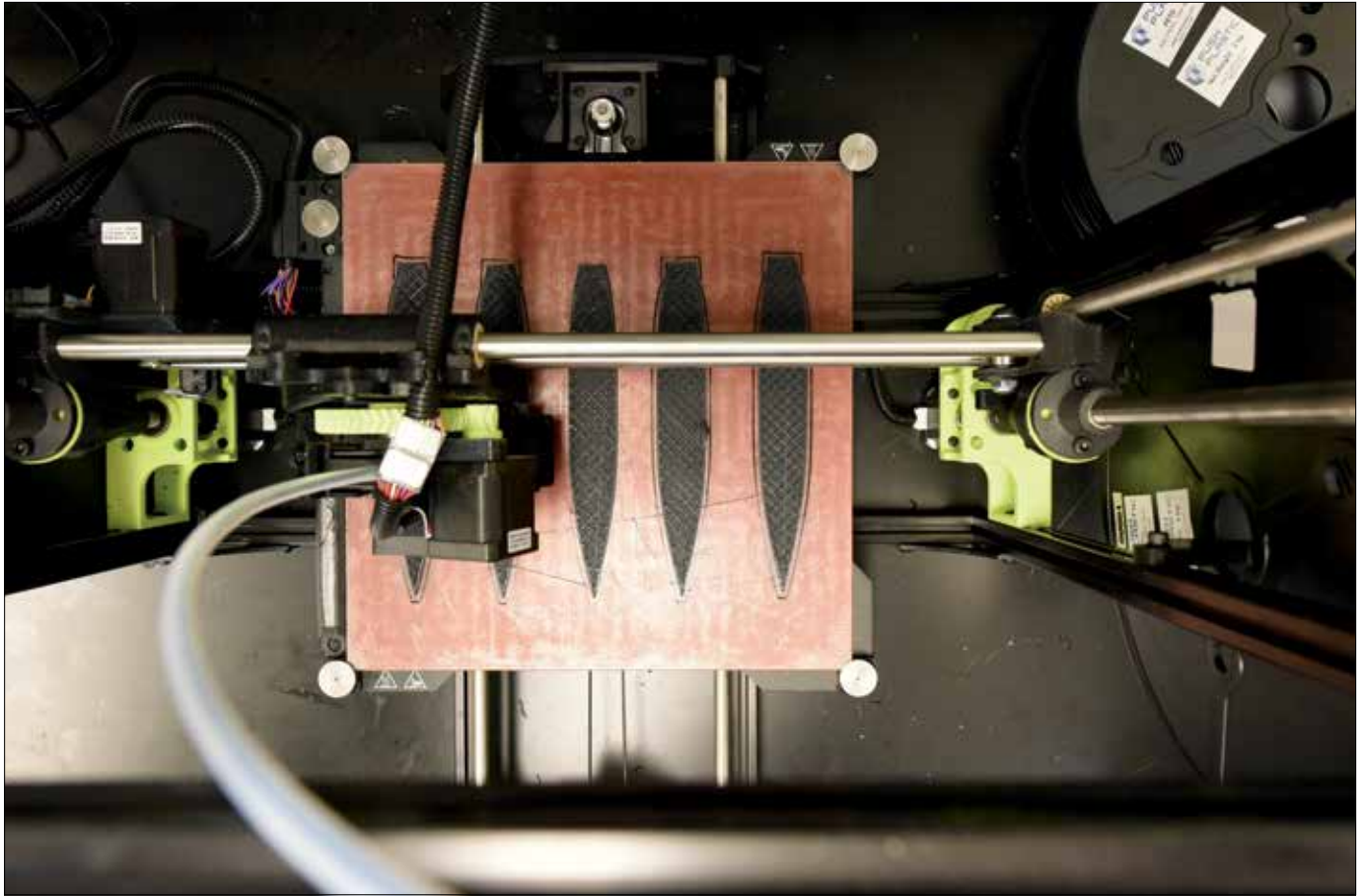
LulzBot TAZ 6 prints small-scale ship model in Manufacturing, Knowledge, and Education Laboratory at Naval Surface Warfare Center, Carderock Division, Bethesda, Maryland, July 25, 2018 (U.S. Navy/Justin Hodge)

should provide opportunities to reduce supply chain labor and long-term sustainment costs. Collapsing the supply chain by producing parts on demand eliminates not only warehousing functions but also the process of creating and transporting the part and/or entire assembly.[15]

While supply chain savings will excite budgeteers and logisticians, the reduction in time to reliably deliver parts will produce significant improvements in equipment readiness. With advances in self-diagnostics, emerging failures can be detected prior to systems and equipment degrading, and systems can identify required parts as soon as failures appear. If parts can be produced locally, rather than waiting for nonstocked items to be ordered and delivered, maintainers can eliminate equipment down time.

In addition to the ability to deliver parts without warehousing, additive manufacture provides the ability to mitigate manufacturing obsolescence.

Diminishing Manufacturing Sources/Material Shortages (DMS/MS) is a significant force degrader as the military continues to extend the service life of weapons systems far in excess of design parameters. Many production lines have shut down and companies have gone out of business due to the generally low demand signal for many parts supporting DOD systems.[16] As such, there is a struggle to field spare parts.[17] With excessive costs associated with restarting production lines or conducting reverse engineering, the Services are forced to cannibalize parts from degraded or even previously discarded equipment.

A significant challenge to production line retooling is the creation of dies and molds. Under traditional methods, fine silica-based sands are used to create molds for molten medal, and this requires skilled artisans and substantial investments in both production and storage costs. Retained CAD files now allow

for the storage of these casting molds electronically. Printers can utilize globally available casting sand, currently in use at foundries worldwide, to recreate molds on demand, versus warehousing large numbers of molds or employing highly skilled individuals to recreate molds in the event of downstream requirements.[18] Such methods allow castings to be poured without high costs and long lead times. It is likely that initial large-scale fielding within DOD can have the most significant impact in mitigating DMS/MS cases.

Challenges

Although there are examples of high-quality airworthy valves being additively manufactured, concerns over quality control of printed parts remain.[19] Under the best circumstances, parts certification can be a lengthy and cumbersome process. Depending on the system, parts may be subject to review and testing

from Service engineering authorities, original equipment manufacturers, non-DOD governmental or nongovernmental agencies, or combinations thereof.[20] These quality concerns are compounded when parts are manufactured at the end use location without the benefit of robust quality assurance resources. Furthermore, military application of 3D printing often takes place in austere environments that suffer from vibration pollution from aircraft engines, heavy vehicles, and even ocean movement on ships at sea. When producing precision parts with narrow tolerances, these environmental disruptions can negatively affect the production process and insert invisible flaws into finished products.[21]

Not only do locations face the quality risks associated with any production process, but there are also emerging cyber risks to be considered. Without robust cyber security covering technical files and even the printers themselves, internal flaws can be inserted into printed parts that are difficult to detect. These structural flaws have the ability to degrade weapons systems and create equipment and even personnel casualties.[22] Therefore, program managers must implement risk assessment and mitigation strategies to counter these quality and cyber vulnerabilities before fielding additive manufacturing, or additively manufactured parts.

Perhaps the most significant hurdle to unit-level implementation of on-demand additive parts production is the procurement and maintenance of intellectual property, which often originate from multiple sources with various levels of certification requirements.[23] Though Federal Acquisition Regulation (FAR) 27-406 directs the identification of data requirements upfront, DOD procured tens of thousands of weapons systems before the potential to produce spare parts locally was even a concept. Acquisition of data, postcontract award, entails significant costs and in some cases may not be possible, necessitating large investment in reverse engineering.[24]

Once data are procured, the cost and management may also limit how far

down the supply chain 3D printers are deployed. Unit-level distribution provides the fastest production to the end-user timeline but produces other risks; maintaining changes to technical specifications and ensuring the information technology infrastructure to deliver CAD files to the production printers require a significant investment. As manufacturers' technical directives are issued, and parts specifications are altered, it is imperative that updates are pushed to the lowest level of production to reduce defective, or even dangerous, parts due to lax data management processes.

As the technology continues to mature and engineering and quality control concerns are rectified, the cost-benefit equation will shift toward additive manufacturing, especially for DMS/MS cases and low-demand items. Once the cost to field and maintain the technology and to procure the required raw material and data packages is less than the total costs of complete products, more products will transition to additive production. The cost to store and maintain inventories, and the difference in transportation that traditionally manufactured parts require due to the distance from the end user, offers opportunities for cost savings, too.

Within each of these cost silos are a number of factors that must be considered prior to implementation. Within the maintenance category, determination must be made on who conducts the maintenance (military or contractor). The former will require development of preventative maintenance protocols as well as significant training. Contractor support allows faster fielding but will have more significant upfront acquisition costs and may result in slower response times to address equipment failures.

Regarding bringing costs under control on the additive manufacturing side of the equation, raw material is second only to data costs. Where injection-molded plastics are available in the ranges of $2 to $3 per kilogram, comparable raw materials for 3D printers can run from $175 to $250 per kilogram. When looking at high-end titanium and titanium alloys, those costs can grow to $880 per

kilogram.[25] Though prices will likely drop as the market for these raw materials grow, this is still a significant challenge to overcome.

Driving the largest financial impact is the cost of data. Without quality data, the military would have to engage in reverse engineering of a product, which is expensive and not guaranteed to produce successful results.[26] The technical specifications required may be critical intellectual property of vendors, covered by patents and other relevant regulations that drive up acquisition and management costs. Furthermore, in those cases where the government has an obligation to protect vendors' intellectual property, there will be significant challenges in the information technology infrastructure to store, update, and deliver required secure information to 3D printers.

There are also a number of nuances that should be understood when making decisions. Traditionally, simple and low-cost items will quickly become readiness-limiting factors as technologies and parts become obsolete. This will quickly move an item from inconsequential to highly relevant in the supply chain. An examination of shelf-life shrinkage must also be considered; many parts degrade in storage over time to the point where they must be discarded. Lowering the pre-use loss of parts to shelf-life expiration by on-demand production can reduce system costs.

Warehousing and transportation costs are anticipated to be negligible in the short to medium term due to the volume of production required to affect net requirements. Should the technology expand, its future capabilities for limiting warehousing requirements and downsizing both real estate and manning in the supply chain will further draw costs down. On the other hand, it is important to note that production is not instantaneous. Shifting to 3D printing–based sustainment may decrease time to deliver parts when the part is not locally warehoused; however, it will likely increase delivery time in those cases where one would otherwise issue directly off the shelf for immediate delivery to the flight line or address an emergent casualty.
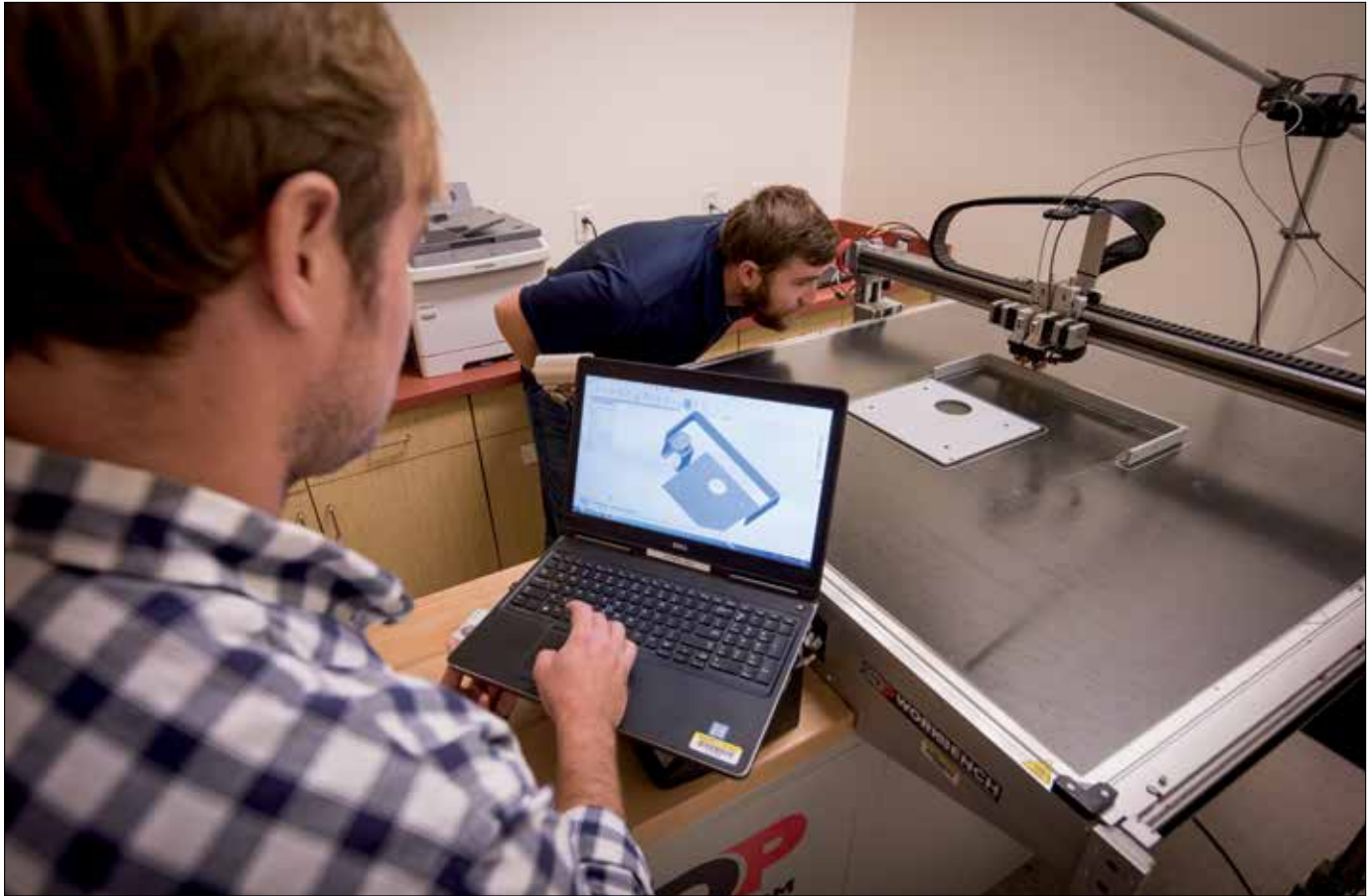
Space and Naval Warfare Systems Center Atlantic employees review CAD software designs for additive manufacturing and verify printer is properly calibrated, Charleston, South Carolina, October 24, 2017 (U.S. Navy/Joe Bullinger)

Enabling Factors

Given the possible advantages inherent in this technology, getting it right is a professional imperative for those designing supportability plans for military programs and those supporting warfighters in the field. A new deployment triad of training technicians, equipment fielding strategies, and operational policies must be developed.

Unlike other emerging technologies, training may be less difficult than anticipated. Much like automotive skills 40 years ago, 3D printing and CAD technology are being taught in high schools, community colleges, and universities throughout the country.[27] There is a large population of young people that has exposure to 3D printers, and while there will always be platform-specific training requirements, DOD can leverage existing skill sets within the force. Though maintenance concepts for equipment will be developed in conjunction with specific

vendors, resident knowledge within DOD organizations, combined with existing manuals, will cover many training requirements.

Deployment levels and volume of the technology are as important as the training and enabling instructions. Field too few systems and the benefits of short supply chains are lost; field too many and it becomes cost prohibitive. Placing additive manufacturing assets at a central hub with intermediate-level maintenance capability within the theater of operations will balance these concerns. Across the joint forces, the support would need to deploy within the Support Maintenance Company (Army), Marine Expeditionary Unit (Marines), Intermediate Maintenance Centers (Navy), or Logistics Readiness Squadron (Air Force). The assets required in theater can be tailorable depending on who the lead agency is for logistics as well as mission, location, and participants. For instance, if the Army

has the lead for logistics during an operation and is supporting ground forces from other Services, it could rely on the Support Maintenance Company as a common user logistics asset. Other environments may be more complicated and require additional assets. For instance, a littoral fight with a smaller footprint could rely on an offshore amphibious readiness group or carrier strike group to support emergent needs, delivering parts via short-hop airlift.

Policy shifts regarding how acquisition professionals approach supportability of equipment will ensure that deliberate assessments of 3D printing's technical feasibility are conducted. There are scores of regulations, policies, and instructions ripe for additive manufacturing–based parts supportability; however, focusing on the FAR, DOD Instruction 5000.2, *Operation of the Defense Acquisition System*, and executive orders will provide the largest impact, due to downstream
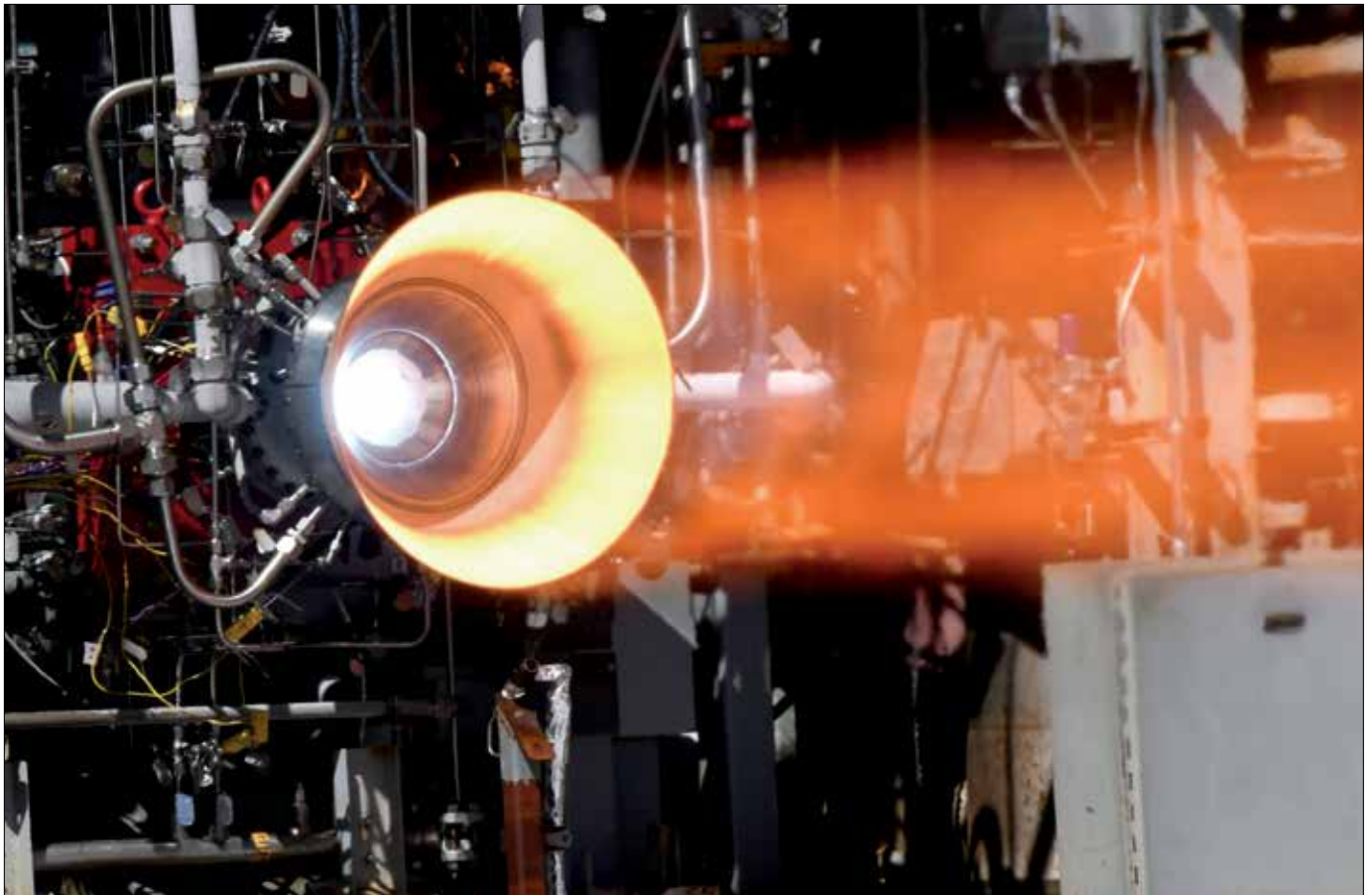
NASA successfully hot-fire tested 3D printed copper combustion chamber liner with E-Beam Free Form Fabrication manufactured nickel-alloy jacket, March 2, 2018 (NASA/Marshall Space Flight Center/David Olive)

policy nesting of higher instruction. Requiring programs to examine the feasibility of acquiring technical data for parts capable of additive manufacture during the first article delivery (FAR §52-299.4) will set the appropriate criteria. While data acquisition is a key enabler for locally produced additive parts, drilling down to the DOD instruction will force critical examination of the parts manufacturing process. Specifically, DOD Instruction 5000.2, §3.9.2.4.3, should be added directing sustainment decisions to actively work with Service engineering agencies to examine the feasibility of additive manufacture for parts sourcing.

Executive orders can jumpstart the process of new construct implementation and effectively communicate the value of new processes and technologies to public programs. President Barack Obama's Executive Order 13693, *Planning for Federal Sustainability in the Next Decade*, achieved this by directing utilization of

"performance contracting as an important tool to help meet identified energy efficiency and management goals while deploying life cycle cost-effective energy efficiency and clean energy technology."[28] With such constructs in mind, additive manufacturing will increase efficiency and decrease the added resources needed in the process of acquiring, shipping, and distributing resources by producing them locally.

With the growth of Performance-Based Logistics procurements, encouraging manufacturers to establish additive manufacturing as part of their long-term sustainment should be an easier sell. As contracts demand system operational availability as a performance metric rather than time to reliably deliver parts, putting the capacity to produce parts close to end users could bolster profits by limiting the requirement to hold significant contractor inventory on hand.

Additionally, DOD should conduct a review of the existing parts inventory to identify those that could be shifted from traditional inventory levels to print-on-demand strategies. The assessment would require a significant effort, as there are over 5 million line items to be assessed—with countless limitations to review even before a business case is made, including material and item size. Once the technical specifications are validated, business cases are required for each item to determine if additive manufacturing is a viable solution for the DOD supply chain. In addition to setting the criteria to use in this assessment, the study needs to address how to present results to the supply system. End users need visibility regarding any parts to be printed on demand when they are researching parts availability. Any limitations on transparency on observed inventory levels (or lack thereof) may incentivize customers to seek out more expensive alternate

options that limit operational availability. Possible criteria for parts to be additively manufactured should include, but not be limited to:

- material availability
- material demand
- backorders
- technical data availability
- type of 3D printer required
- manufacturing lead times
- unit cost
- technical complexity
- quality assurance requirements.

There is little question that additive manufacturing will continue its expansion into additional fields, increasing flexibility and shortening supply chains. It will not be an easy transition and will require significant hurdles to be overcome before the Department of Defense declares it a success. Through a disciplined approach to fielding the technology, including ensuring that trained personnel are operating at well-equipped locations, a wide range of rapidly manufactured items will be available to support the warfighter. By developing instructions and directives to ensure intellectual property is acquired, up to date, secure, and available, DOD can optimize costs and provide required support to the military Services at the best price to the taxpayer. **JFQ**

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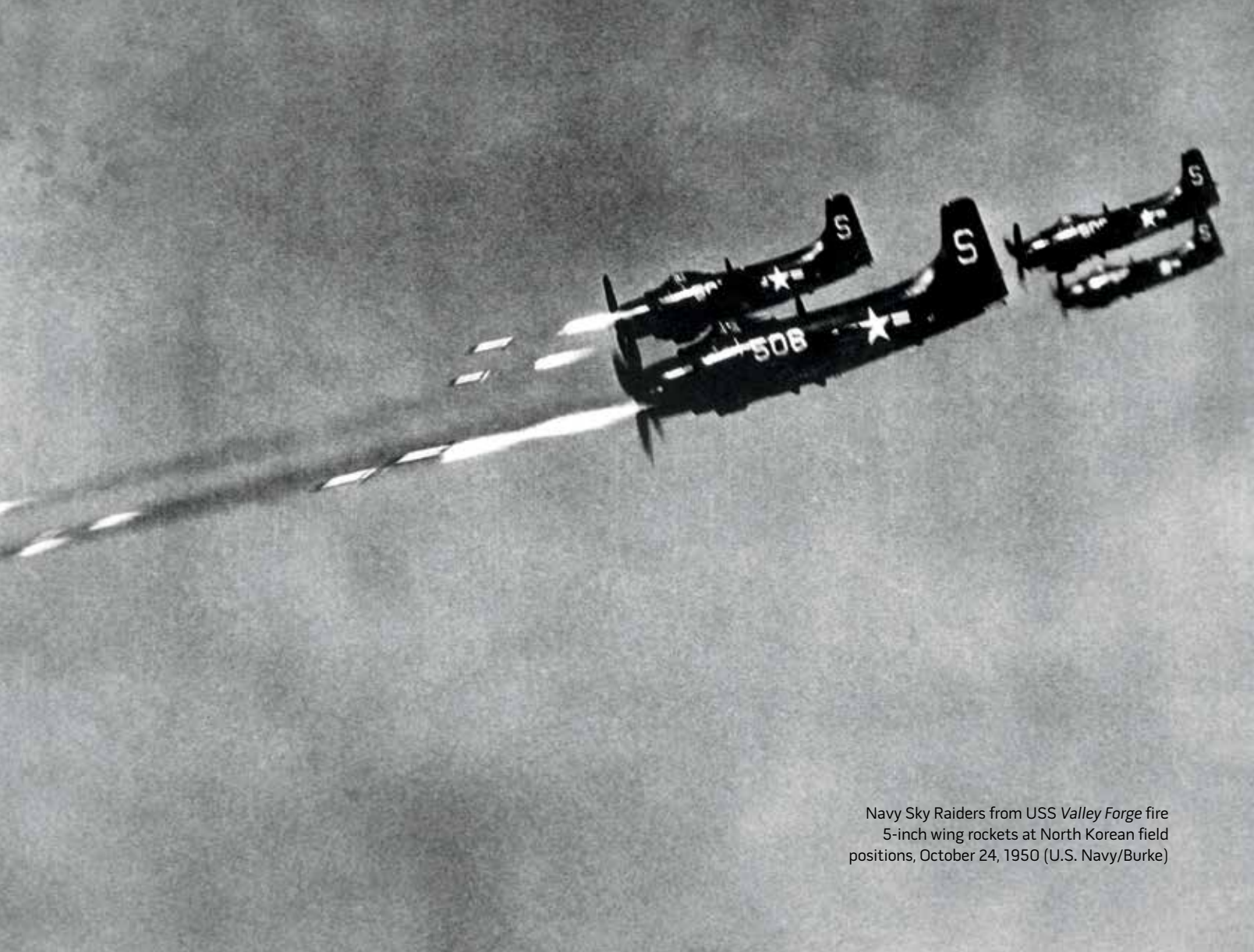
Navy Sky Raiders from USS *Valley Forge* fire 5-inch wing rockets at North Korean field positions, October 24, 1950 (U.S. Navy/Burke)

The U.S. Air Force and Army in Korea

How Army Decisions Limited Airpower Effectiveness

By Price T. Bingham

Lieutenant Colonel Price T. Bingham, USAF (Ret.), is a former Combat Fighter Pilot, Aviation Expert, and frequent commentator on Air Force and joint issues.

During the first year of the Korean War, U.S. airpower resumed the key role that it had played in the Allies' defeat of the German army in World War II.[1] This article explains why U.S. Air Force airpower was key to the United Nations Command's ability to defeat the North Korean invasion and then rescue U.S. Army forces from disaster when the Chinese intervened. Too often, the critically important role airpower played in Korean ground operations has been neglected, a short-coming this article intends to correct.[2] It also illustrates that Army commanders in Korea had a poor understanding of airpower and that this caused them to make decisions that handicapped the effectiveness of U.S. airpower, making the Korean War much more costly than it needed to be. The Army's failings in Korea continue to have important policy implications today given the threat

Astonished Marines of 5th and 7th Regiments, who hurled back surprise onslaught by three Chinese communist divisions, hear that they are to withdraw, circa December 1950 (U.S. Marine Corps/U.S. National Archives and Records Administration/Frank C. Kerr)

posed by North Korea, since Army doctrine still does not recognize the key role airpower, in the form of air interdiction, must play in order to defeat an opposing army at the lowest possible cost.[3]

The North Korean Invasion

On June 25, 1950, a 135,000-man North Korean army—organized, trained, and equipped by the Soviets—employing 150 T-34/85 tanks, artillery, and trucks, and supported by its air force, launched a surprise invasion of South Korea. Although shocked by news of the invasion, initially the United States was confident that the Republic of Korea (ROK) army could handle the invasion. As a precaution, the commander of Far East Command (FEC), General Douglas MacArthur, soon to be named commander of United Nations Command (UNC), ordered Far East Air Force (FEAF), commanded by Lieuten-

ant General George E. Stratemeyer, to provide air cover for the evacuation of American nationals. On June 27, patrolling Fifth Air Force (5AF) F-82s based in Japan and commanded by Major General Earle E. Partridge engaged and shot down four North Korean aircraft. As powerful North Korean forces began overrunning the lightly equipped South Korean forces, FEAF was ordered to begin bombing attacks against North Korean forces who were moving rapidly down the peninsula.[4]

In addition to employing airpower, the United States began deploying Army forces from the 24th Infantry Division, which was on occupation duty in Japan. Task Force Smith, the division's initial deployment, was quickly defeated by a tank-equipped North Korean attack and forced to withdraw.[5] As the North Koreans exploited this victory and continued to advance, more Army forces

under the command of Lieutenant General Walton H. Walker, Eighth U.S. Army in Korea (EUSAK), began arriving. Yet even with these reinforcements, U.S. and ROK units were forced to continue their retreat.

From the very beginning, Air Force effectiveness was handicapped by the availability of airfields.[6] There were only five improved bases in the South, along with six primitive short sod strips. The two bases suitable for the F-80, Kimpo and Suwon, near Seoul, were quickly captured by the North Koreans, making it necessary for F-80s to fly from bases in Japan.[7] The 310 miles from Itazuke to the Seoul area gave F-80 pilots little time to search for targets. Even so, the first 24 F-80 sorties on June 28 caused significant damage when they found the roads crowded with North Korean tanks, trucks, artillery, and troops.[8] B-29s and B-26s based in Japan also began bombing

and on June 30 inflicted severe damage on North Korean tanks, trucks, and other vehicles stuck in a traffic jam waiting to cross the Seoul railway bridge.[9]

Given that its focus was on the defense of Japan from a possible Soviet attack and not fighting an army offensive in Korea, FEAF had only 22 B-26s, 12 B-29s, 70 F-80s, and 15 F-82s available for missions in Korea. Moreover, like the Army in Japan, training for fighting an enemy army had received little attention. Recognizing the urgent need for more airpower, FEAF requested reinforcement from the United States, including 164 F-80s. However, due to its shortage of F-80s and the problems with basing, the Air Force substituted 150 F-51s.[10]

Initially, an even higher priority for the Air Force than attacking the invading ground forces was ensuring control of the air. As a result, many bomber sorties were devoted to attacking North Korean airfields rather than their ground forces. To prevent enemy aircraft from attacking the bombers and ROK forces, F-80s began flying patrol orbits at 10,000 feet over the Han River. Fuel reserves meant that these aircraft could stay on station for only 15 to 20 minutes before returning to Japan, but on the way home they would attack any North Korean forces they saw moving south.[11]

Their attempt to win the war quickly by moving in accordance with Soviet doctrine exposed North Korean forces to devastating air interdiction attacks. Almost every FEAF sortie destroyed some enemy target. Air interdiction had this effect because it could exploit North Korea's reliance on motorized vehicles and trains. Unlike close air support where enemy forces were dispersed, dug in, and often well concealed, forces attempting to move rapidly were out in the open and often concentrated, making them far easier for Airmen to locate and destroy.

Airpower's ability to exploit traffic jams caused by bridges destroyed by air interdiction was evident when, from July 7 to 9, aircrews claimed 197 trucks and 44 tanks destroyed.[12] To augment aircraft flying from Japan on July 10, FEAF converted six F-80 squadrons in Japan to the F-51s. The first F-51s in Korea

were stationed at Taegu Air Base (AB), followed soon after at Pohang AB. The F-51's ability to fly from bases in Korea allowed them to carry more weapons (for example, napalm, which proved especially effective at destroying tanks), while also being able to devote more time to looking for targets. Brigadier General Timberlake, deputy commander of 5AF, explained the basing advantage on July 8, stating, "One F-51 adequately supported and fought from Taegu Airfield is equivalent to four F-80s based on Kyushu."[13]

From the beginning of the war in Korea, one of the major challenges the Air Force faced was the result of U.S. command arrangements. MacArthur's general headquarters (GHQ) was not a joint staff. As Partridge noted in his diary, "There is nothing even vaguely resembling a joint staff. GHQ is an Army Staff."[14] Not only did MacArthur's staff consist almost entirely of Army officers, these officers frequently attempted to directly "run the air forces" or take actions that affected airpower's effectiveness without first discussing the proposed action with Air Force leaders. As a result, Air Force leaders often had to explain why key operational-level decisions that concerned airpower and had been made without consideration of Air Force expertise were wrong and needed to be changed.[15] These decisions involved air interdiction, including emphasis on air interdiction as opposed to close air support; responsibility for the control of airpower; logistics, including basing availability and operability; and air reconnaissance.

While Airmen had a sound appreciation from World War II of air interdiction's potential contribution as part of a balanced concept of airpower, many ground officers in Korea did not.[16] Like the Marine Corps, they saw airpower as mainly close air support and did not have a good understanding of the factors at the operational level of war that made air interdiction effective. It was only after FEAF vice commander for operations, Major General Otto P. Weyland, explained the importance of interdiction to MacArthur's GHQ staff that, on July 26, FEAF was finally allowed to begin the first of several comprehensive interdiction programs.[17]

The need to educate Army commanders about the importance of air bases was also never-ending. During the battle on the Pusan Perimeter, Partridge sent a letter to Walker explaining 5AF had been caught off balance repeatedly by unexpected ground force actions. He stressed the importance of the Taegu AB to EUSAK operations, stating the insecurity of Taegu had already canceled the movement of three squadrons of F-51s from Japan to Taegu and caused one squadron's movement to Pohang AB to be withheld. This meant that 100 F-51s were flying missions from Japan, rather than from Korea. He went on to point out that if Taegu falls, Pohang will follow, and before this occurs, the remaining two squadrons of F-51s will be returned to Japan, reducing their rate of operations and almost eliminating airlift into Korea.[18] Later, when General Matthew Ridgway took command of EUSAK, the basing education process had to be repeated. In this case, MacArthur was now the one who pointed out to the new EUSAK commander that recovering the use of Kimpo would be of value for strengthening air operations.[19]

Control of theater airpower had quickly become a contentious issue when MacArthur's staff began telling FEAF how to conduct air operations. In response, on July 10, Stratemeyer had personally carried a memorandum to MacArthur stating he hoped MacArthur would have the same confidence in him that he had with his Airmen during World War II. Although MacArthur told Stratemeyer that he had his confidence and was to run his own show, the struggle for control of airpower was not over.[20]

One point of contention was control of B-29 operations since MacArthur's chief of staff, Major General Edward Almond, had established a GHQ-dominated group to choose bomber targets. Weyland pointed out deficiencies with the targets chosen by this group. Only at this point was it agreed that FEAF should be allowed to take a more active role in target selection.[21]

Despite this agreement, the Army was not finished with its efforts to direct B-29 operations. On August 13, MacArthur told Stratemeyer he wanted the entire

Marine infantrymen take cover behind tank while it fires on communist troops ahead, Hongchon Area, May 22, 1951 (U.S. Marine Corps/John Babyak, Jr.)

B-29 force that was currently performing interdiction to "carpet bomb" a suspected enemy concentration in support of EUSAK. Air Force officers were further dismayed when the size of the Army's target area turned out to be far larger than what the Air Force recommended. After reconnaissance revealed no evidence of enemy activity in the area bombed by the B-29s on August 16, both Stratemeyer and his bomber commander, Major General Emmett O'Donnell, would recommend that no more such missions be flown unless the ground situation was extremely critical and the enemy was concentrated.[22]

Although more Army divisions and a Marine brigade were deployed to Korea, the North Korean offensive was not stopped until it reached the Pusan Perimeter. While UNC ground forces were defending the Pusan Perimeter, the FEAF and carrier-based naval air forces had been conducting intensive air attacks against the North Koreans. In addition to providing close air support, FEAF fighters and bombers were continuing to perform air interdiction.

By the time the North Korean army had reached the Pusan Perimeter, its vulnerability to air interdiction had been significantly increased by its dependence on support traveling over long lines of communications (LOCs). Korea's terrain with its rivers, ridges, and rice paddies made cross-country movement difficult to impossible, especially for motorized vehicles. As a result, the North Koreans depended heavily on a rail and road network that crossed numerous bridges.

Thanks to possession of air superiority and the enemy's lack of heavy antiaircraft artillery, B-29s could make multiple individual attacks from altitudes as low as 10,000 feet.[23]

It was not long before FEAF air attacks persuaded the North Korean army's leaders that they could not afford the losses moving during the day incurred. In response, the North Koreans came to accept the delays inherent in limiting movement to the hours of darkness. Despite the problems imposed by darkness, air interdiction—along with close air support—greatly degraded the effectiveness of the North Korean army. By early September, airpower was responsible for much of the North Korean army's supply shortages and troop losses. EUSAK leaders thought they were fighting an enemy

army of 100,000, possessing 75 percent of their equipment. Instead, the North Koreans actually had only about 70,000 troops and 50 percent of their equipment.[24] Losses were not the only way the North Korean army was degraded. The flexibility of enemy operations was severely degraded by the need to confine their movements and assaults to the hours of darkness. Moreover, their soldiers had far lower morale because of the destruction caused by airpower and their inability to fight back effectively.[25]

It was only after the advance of UNC ground forces out of the Pusan Perimeter that FEC intelligence was able to accurately assess the immense effect airpower had had on the North Korean army. A third or more North Korean personnel losses and more than half of their equipment losses were caused by airpower. U.S. Army leadership finally realized that airpower, not the landing at Inchon, had been the key to the North Korean army's defeat. As Walker put it, "I will gladly lay my cards on the table and state that if it had not been for the air support that we received from the Fifth Air Force, we would not have been able to stay in Korea."[26]

During the fight on the Pusan Perimeter, FEAF had available for operations seven squadrons of F-51s, three of which were based in Korea at Taegu and Pohang. Also at Taegu was the T-6 "Mosquito"–equipped 6147th Tactical Air Control Squadron.[27] The remainder of 5AF units committed to Korea were based in Japan. For operations in Korea, FEAF also had O'Donnell's Bomber Command (Provisional) with five B-29 groups, and Combat Cargo Command (Provisional) under Major General William H. Tunner.

Inchon and the Breakout from the Pusan Perimeter
On August 28, 1950, the Joint Chiefs of Staff (JCS) gave MacArthur approval to make an amphibious landing at Inchon, scheduled for September 15. The plan called for X Corps, commanded by General MacArthur's chief of staff, General Edward M. Almond, to make the landing, led by the 1st

Marine Division and followed by the 7th Infantry Division.[28] MacArthur's plan called for withdrawing the Marine brigade from EUSAK while EUSAK was still engaged in hard fighting, attempting to hold back North Korea's Great Naktong Offensive.[29] At this time the North Korean offensive had made so much progress that some 5AF units were forced to evacuate Taegu AB.

FEAF airpower played a major role in the success of the Inchon landing. The intense interdiction effort FEAF had begun in mid-August not only destroyed North Korean forces and supplies, but it also damaged LOC infrastructure, preventing North Korean forces from moving rapidly to reinforce Inchon. In addition, FEAF was carrying out counter-air missions against North Korean airfields to ensure air superiority. As a result, the landing met light resistance from the 2,000 comparatively new North Korean troops defending Inchon.

To the south, EUSAK played an important role in helping the landing at Inchon by three different attacks. Although EUSAK's offensive began on schedule, it quickly ran into strong North Korean defenses, with FEAF operations being hindered by poor weather. However, when the weather began improving the next day, an increasing amount of airpower was brought to bear. Finally, on September 19, the 1st Cavalry Division managed to break through North Korean defenses and soon all enemy forces began falling back with resistance collapsing. EUSAK forces then pursued the retreating enemy forces, with T-6 Mosquitoes flying column cover.

Army decisions created problems for airpower again after the Inchon landing. On September 20, Stratemeyer noted in his diary that he had called X Corps to tell them that for "their own good [ability to receive air support and airlift] and the maintenance of Kimpo Air Port, our Aviation Engineer Battalion and our own air base troops for Kimpo should be debarked [at Inchon] without delay. Everyone agreed but indicated that it had been held up on Almond's order as he needed fighting doughboys and ammunition."[30]

The Army's attempts to control airpower in Korea were not limited to MacArthur and his staff. On October 7, Stratemeyer wrote in his diary that he had learned Almond had written letters to General Mark Clark and others in the United States. In these letters, Almond stated that he recommended Marine Corps–type air support where, according to Almond, Marine aviation operates under the ground commander. Stratemeyer noted that Almond made this recommendation, even though he was not supported by the Air Force in any of his later ground actions. In accordance with established procedures, the 1st Marine Air Wing was tasked to support X Corps within the amphibious objective area. Stratemeyer also wrote of being told there was "quite a drive on in the Army led by Mark Clark to attempt to secure for the Army its own support air force."[31] Much of the rationale for Army efforts in Korea to run the Air Force was based on the belief the Air Force was providing inadequate close air support.

Advance across the 38th Parallel
The consequences from Inchon were far-reaching. On September 27, MacArthur received orders authorizing amphibious and ground operations north of the 38th parallel. MacArthur's plan was not to put X Corps under Walker, whose forces would continue their advance north across the parallel. Instead, he would use X Corps to make a second amphibious landing at Wonsan. Giving X Corps priority at Inchon so it could meet the tight schedule for landing at Wonsan created a massive logistical problem.[32] With the plan's assumption of little enemy resistance, airlift was the primary demand put on FEAF.[33]

UNC's logistics advantage was quickly diminishing as the distance from Pusan increased and UNC forces had to move over a severely damaged road and rail network. The logistics problem could have been much smaller if the port of Inchon had been available to support advancing EUSAK and 5AF units instead of X Corps.[34] With EUSAK and 5AF unable

Lead bomber attacks enemy positions, as seen from B-29 Superfortress of Far East Air Forces 19th Bomber Group on its 150th combat mission since start of Korean War (Air and Space Museum)

to rely on Inchon for the movement of supplies and forces in their advance above the 38th parallel, both relied heavily on airlift. However, little airlift was immediately available because it was being withheld for MacArthur's planned drop of the 187th Airborne Regimental Combat Team. This planned airdrop not only tied up aircraft, but its dependence on Kimpo as a forward strip also forced 5AF units to move to make room for the transports.[35]

Logistical constraints had made EUSAK's advance into North Korea a calculated risk, with its supply being almost entirely by airlift. EUSAK stated it needed 1,000 tons of daily airlift. Since 450 tons would be needed to move

two fighter wings and the Mosquito Squadron forward to the Pyongyang area, and only 1,000 tons of total airlift was available, 5AF agreed to reduce its requirement to 60 tons, preventing the forward movement of fighter bases.[36]

During the advance of the UNC ground forces, 5AF units had been moving into Korea from Japan as fast as bases could be made operable and the constrained transportation system permitted. By the end of October, 5AF had one RF-80 and three F-80 squadrons at Taegu, two F-51 squadrons at Pusan, two F-51 squadrons at Pohang, one F-51 squadron at Kimpo, and the Mosquito Squadron first at Kimpo and later at Seoul Municipal.

Chinese Intervention

MacArthur's assumptions regarding the threat posed by enemy action were proved wrong when, on October 25, the Chinese, in what they called their first campaign, began attacks against elements of EUSAK, followed by similar attacks against X Corps on November 2. These attacks brought a halt to EUSAK's advance and caused units to withdraw into defensive positions to wait for their logistical situation to improve.[37] On November 1, a MiG-15 based in China attacked 5AF aircraft operating near the border, making it increasingly urgent for 5AF to move its units to airfields closer to the enemy. Then, to the puzzlement of the UNC leaders, by November 7 the Chinese had broken off all contact.

The Chinese attacks caused MacArthur to order 2 weeks of intensive air attacks against the Korean end of the Yalu bridges. Learning of this order, which was in clear violation of directives to stay well clear of the border, the JCS ordered the postponement of all bombing and asked MacArthur his reasons for the order. MacArthur's answer was that Chinese troops were "pouring" across the bridges and their movement threatened the ultimate destruction of UNC forces.[38]

MacArthur's answer shocked the JCS since he had reassured them on November 4 when asked his appreciation of the situation given Chinese intervention. On November 6, the JCS reversed themselves and authorized the bombing as long as the border was not violated. Surprisingly, despite his previous message, MacArthur told the JCS it would be "fatal" to weaken current policy and change his mission.[39]

Much of the reason for the low estimates of Chinese strength was MacArthur's belief that intervention by large numbers of Chinese would be detected by "our Air Force."[40] The success of airpower against the mechanized North Korean army had caused MacArthur to come to dangerously wrong conclusions about airpower's ability to prevent intervention by the Chinese.[41] Clearly he did not understand

the much greater difficulties Airmen had detecting light infantry moving at night a relatively short distance into North Korea, and who were well trained in camouflage, when compared to detecting a mechanized ground offensive. He also was probably not aware of how little reconnaissance capability his air forces actually possessed. After a November 9 attack by MiGs on a vulnerable RB-29 along the Yalu River, 5AF began using only the faster RF-80 squadron to conduct reconnaissance in this area. Since 5AF possessed only one RF-80 squadron, rather than the three squadrons required by doctrine, reconnaissance in areas south of the Yalu where Chinese troops were already hiding was significantly reduced. Moreover, sorties that were flown focused on the Yalu bridges that MacArthur wanted to attack, not areas in the mountains where Chinese forces were already massing. Adding to the problem was the lack of photo interpreters, night reconnaissance units, and smoke from forest fires that the Chinese had set to provide concealment.[42]

If these handicaps were not enough, the Mosquito Squadron was not allowed to achieve its full potential for performing the visual reconnaissance that was needed to provide accurate intelligence. The squadron's small size limited the number of sorties available for visual reconnaissance.[43] But even those sorties that were flown rarely penetrated much beyond friendly lines because of restrictions imposed by the Army, which depended on the Mosquito to make up for its own lack of communications capabilities.[44]

Later, his remarks at a conference with Matthew Ridgway on December 26 would provide even more evidence that MacArthur had a seriously flawed understanding of airpower's capabilities and limitations. It seems that he failed to appreciate how an army was organized, trained, equipped, and employed (for example, mechanized fast-moving offensive versus light infantry infiltrating and enveloping) had an impact on the effectiveness of air interdiction.[45]

On November 17, MacArthur had estimated that not more than 30,000 Chinese troops were in Korea. Once

Major John F. Bolt, USMC, with his U.S. Air Force F-86 "Sabre" jet fighter, July 13, 1953, two days after he shot down his fifth and sixth MiG-15s (U.S. Marine Corps/ Tom Donaldson)

supplies were built up he planned to have EUSAK launch an offensive to complete the destruction of communist forces in Korea. As this ground offensive was about to begin, 5AF's basing situation had improved only slightly. Kimpo now had two F-51 squadrons, and three F-51 squadrons had just moved forward to join the Mosquito Squadron.

Earlier, on November 7, Stratemeyer had noted that 5AF should now have airlift priority.[46] When EUSAK complained, a new arrangement was adopted where X Corps would get only emergency airlift. Finally, on November 21, Partridge noted to Stratemeyer that for the first time in months EUSAK's supply system was in good shape.[47]

On November 24, when EUSAK resumed its advance, MacArthur reported to the JCS the delay was entirely the result of logistics difficulties.[48] Meanwhile, 5AF had finally been able to move some of its fighter squadrons to forward fields in North Korea. From November 17 to 19, three F-51 squadrons arrived at Hamhung; on November 22, three F-51 squadrons arrived at Pyongyang East; and on November 25, two more F-51 squadrons reached Pyongyang.[49]

The UNC ground offensive met only light resistance the first day, but on the night of November 25 the offensive again came to an abrupt halt. The Chinese had begun their second campaign by ambushing the ROK II Corps and exposing the

U.S. 2nd Division and the Turkish brigade to possible destruction.[50] MacArthur now reported the Chinese had 200,000 troops and ordered his forces onto the defensive while asking for new policy guidance. The JCS approved the shift to the defensive and recommended a withdrawal. The sudden withdrawal of the UNC ground forces had a major impact on airpower by forcing 5AF units to quickly abandon several bases that they had only just begun operating from and forcing them to abandon much of their equipment.

The Chinese ambush had shocked the normally confident MacArthur who now planned to pull EUSAK and X Corps into separate beachheads and prepare for possible evacuation of all UNC forces from Korea.[51] At this point, Stratemeyer reported that he hand-carried a memo to MacArthur explaining why he should order a withdrawal rather than an evacuation."[52] Shortly afterward MacArthur suddenly changed his mind, and on December 7 ordered the withdrawal that Stratemeyer had suggested.[53]

It is interesting to note the different attitudes Soldiers and Airmen had about the situation facing UNC forces. Partridge, who had a good appreciation of the handicap airpower was imposing on the enemy, noted in his diary that he was not as concerned as Walker about the immediacy, strength, or location of enemy attacks as Walker. Partridge realized that "we've moved by truck—our troops are fresh—[whereas the] enemy forced to march at night only, supply routes long and under constant attack."[54]

Just like MacArthur, Chinese leaders also had much to learn about airpower. While initially they showed great respect for UNC airpower, this attitude changed after they successfully ambushed UNC ground forces in late November. For the first 2 weeks of December, the Chinese began moving rapidly in their attempt to exploit their success and destroy the retreating UNC ground forces.[55] Now the Chinese leaders were to be given a lesson in air interdiction.

Thanks to air interdiction, the Chinese pursuit put UNC forces into a position where they could return to the offensive and push the enemy back.

By attempting to overtake and destroy the mechanized UNC ground forces, the Chinese marched on roads, even during daylight. Moving rapidly during daylight exposed Chinese troops to such devastating attacks that, by December 16, airpower had killed or wounded an estimated 33,000 Chinese troops, the equivalent of four full-strength divisions.

Their massive losses caused the Chinese to return to hiding by day and moving by night. When it was discovered that the enemy's troops were hiding in villages, these became prime targets for air attack.[56] While it may be difficult to quantify accurately, it can be assumed that these attacks greatly degraded the effectiveness of surviving enemy soldiers.[57]

Even though UNC forces had abandoned or destroyed vast amounts of supplies and equipment during their retreat, they also benefited logistically by moving closer to the port of Pusan. The reverse was true for the pursuing Chinese. As had been the case with the original North Korean offensive, the Chinese advance in December 1950 and January 1951 rapidly increased their logistical problems. Where it had been an advantage for the Chinese to be free of more easily detectable motorized transportation when moving into concealed ambush positions near the border, their dependence on soldiers carrying their own ammunition and food now became a rapidly increasing logistical problem as they advanced. Not only did the UNC's air attacks take a growing toll, but the fierce cold and snow also added to their problems, contributing to their extremely high number of casualties.[58]

Thanks in large part to airpower, especially air interdiction, by February 1951 UNC ground forces were able to bring the enemy pursuit to a halt and even force their withdrawal. In announcing this success, MacArthur's press release made what had happened largely by accident appear to be the result of his design. In any case, it was clear that MacArthur had learned how vital factors such as time and space could be to the effectiveness of air interdiction.[59]

In an article published in the Fall 1953 issue of *Air University Quarterly*

Review, Weyland reminded readers that the "effectiveness of [air interdiction] is directly proportional to the time, space, and fire-power available for air attacks."[60] He went on to warn that

There is a tendency among many to regard all such air [interdiction] *operations against ground forces merely as support of the army. This generates misguided concepts of organization, control, and employment which tend to affect adversely a smoothly functioning team. But more basically it prevents us from seeing the possibilities of employing both air and surface forces in the most effective combined strategy.*[61]

In what some even today might see as a radical view, he then noted that

overall strategy must be geared to the air situation and the capabilities of the friendly air forces as much as to ground forces concepts of maneuver and fire. There should likewise be no stigma attached to the concept that ground force strategy may be designed to exploit the effects of air strategy. If the objectives and situation are such that, in order to be successful, air power must be exploited to the fullest, then ground forces must support the air forces.[62]

Weyland believed an examination of the record in Korea would show that the "effective employment of air forces can permit a great reduction in the size and composition of friendly ground forces."[63] The amount of reduction would depend on "how completely the friendly air force can exploit opportunities for attacking ground force organizations, logistics, and facilities."[64]

Conclusion

Analysis of this period of the Korean War reveals that not only did many key Army officers not understand the capabilities and limitations of airpower, but worse, many of them also were unwilling to listen to Airmen who were trying to explain how their decisions were harming air power's effectiveness. The problem may be the result of the Army's emphasis on the tactical rather

Black-painted U.S. Air Force Douglas B-26C *Invader* assigned to 3rd Bomb Wing, 5th Air Force, drops bombs over communist target in North Korea, ca. 1953 (Air and Space Museum)

than the operational level of war, which is apparent in their focus on close air support rather than air interdiction. As a result, the Army failed to appreciate the importance of how rapid movement—especially movement by mechanized forces—multiplies the ability of air power in the form of interdiction to delay and destroy opposing ground forces. Their lack of attention to air interdiction helps explain why many Soldiers have failed to recognize that, beginning in World War II, the success of U.S. ground forces has come to depend greatly on the effectiveness of U.S. air interdiction. In contrast, enemy army officers in both World War II and Korea (as well as in wars since then such

as the North Vietnamese Easter Offensive and the Iraq wars) who have been on the receiving end of U.S. airpower have had no such problem in recognizing how air interdiction contributed to their defeat.[65]

The Korean War also provides powerful evidence of how basing availability and operability contributes to air power's effectiveness by its impact on the movement of airpower. Basing, even with air refueling, plays a major role in determining the number of sorties that can be flown, the type of aircraft that can fly, the target areas these aircraft can reach, their time in the target area to find and attack enemy forces, and the weapons payloads they can deliver. Too often in Korea the

Army's logistical decisions handicapped the ability of the Air Force to move its squadrons closer to the enemy. This handicap on the movement forward of fighter squadrons was particularly important after Inchon when UNC ground forces advanced into North Korea.

Target detection was still another key factor determining airpower's effectiveness in Korea. Army officers, especially those in command and intelligence positions, did not appear to recognize the vast differences between the difficulties Airmen faced finding Chinese light infantry infiltrating through the mountains and North Korean mechanized units moving along roads. Compounding the problem of finding enemy forces was

Enemy fuel truck hit by North American F-51 on highway east of Kumchon, Korea (Air and Space Museum)

the Army's decision to use Air Force Mosquitoes to substitute for their lack of communications preventing the Air Force's Mosquitoes from ranging far ahead of advancing UNC ground forces. It is quite possible that visual reconnaissance provided by Mosquitoes would have detected the magnitude of the danger the Chinese posed because of their infiltration into ambush positions.

Finally, recognizing the truly immense advances in Air Force capabilities for detecting and precisely targeting mobile ground forces, even at night or during bad weather, that have been made since the Korean War[66] and the increasing dependence of the United States on airpower for defeating opposing mechanized ground forces, it is past time for considering whether campaigns against such armies should be commanded, as Weyland suggested, by an Airman.

Given that the overall theater strategy needs to be geared to the air situation, an Air Force officer is far more likely than an Army officer to understand how to design the employment of ground forces in a way that will exploit fully the effectiveness of U.S. airpower. Yet despite this reality, Service-based prerogatives continue to play a major role in the selection of combatant commanders, making it likely that if war breaks out again on the Korean peninsula an Army officer will be the commander. As one expert explained, "the presence of strong inter-Service politics suggests that jointness has served more as a cover to allow the Services to remain dominant in their traditional roles and missions without fear of encroachment. And second, it suggests that the Services offer their unique paradigms of war to compete for who can best achieve U.S. national security objectives."[67] And,

as has been noted, the Army's paradigm of war expressed in its doctrine still fails to recognize the need to design ground force maneuver to exploit the key role air interdiction must play in achieving success. Even joint doctrine does not recognize the need to design ground maneuver so that it enhances the effectiveness of air interdiction.[68] **JFQ**

Notes

[1] For an excellent treatment of airpower's role in the defeat of the German army, see Omar N. Bradley, *Effect of Air Power on Military Operations, Western Europe*, U.S. Strategic Bombing Survey and Air Effects Committee, 12th Army Group, Wiesbaden, Germany, July 15, 1945. The summary of prisoner of war interrogations is especially interesting, as it provides the perspective of soldiers who were on the receiving end of Allied airpower.

[2] For example, see Robert M. Citino,

Blitzkrieg to Desert Storm: The Evolution of Operational Warfare (Lawrence: University Press of Kansas, 2004), 148. In his discussion of this period of the Korean War, in a book supposedly about the operational level of war, Citino asserts that "Armor and airpower had played a purely subordinate role, supporting infantry in the attack or defense. It was as if the great military debate of the 1920s over the role of these new 'machine weapons' had never taken place or had been stood on its head."

[3] Current Army doctrine fails to provide appropriate guidance by not recognizing how Army maneuver can make air interdiction more effective, creating an irresolvable dilemma for the enemy. While it does use Task Force Smith from Korea as an example, there is no mention of airpower being key to the defeat of the North Korean army or the role it played when the Chinese ambushed the Eighth Army. In ignoring these cases, the manual fails to provide any treatment of retrogrades and withdrawals and the key role airpower in the form of air interdiction can play in making these operations a success. The closest the manual comes to any of this is mentioning that Army formations need to be capable of maneuvering from positions of disadvantage in order to create opportunities for exploitation by other members of the joint force. See Field Manual 3-0, *Operations* (Washington, DC: Headquarters Department of the Army, October 6, 2017), 2–299.

[4] It is the importance of rapid movement that explains why modern armies, including the North Korean army both in 1950 and today, are mechanized. Vehicles, especially tanks, allow armies to move quickly while providing the heavy firepower and armored protection that they need to overwhelm opposing forces and then exploit their success. Besides transporting troops, trucks provide vital engineering support and, along with railroads, the supplies that armies need to achieve and then sustain rapid movement.

[5] Clay Blair, *The Forgotten War: America in Korea 1950–1953* (New York: Times Books, 1987), 94–103.

[6] This reality is key to understanding both the Air Force's effectiveness and also how decisions made by Army officers regarding bases limited, often severely, that effectiveness. Especially before air refueling became routine for the Air Force in Vietnam, the location of a base determined the depth of attacks by its aircraft, number of weapons they could deliver, number of sorties they could fly per day, and amount of time they could spend on station looking for suitable targets. Time in the target area was especially important because this determined how long pilots could search for often difficult-to-locate enemy forces. But the location of bases was not the only critical factor influencing airpower's effectiveness. Equally important was the number of available bases and their size, both of which did much to determine how many and what kind of aircraft the United

States and its allies could employ.

[7] Conrad C. Crane, *American Airpower Strategy in Korea, 1950–1953* (Lawrence: University Press of Kansas, 2000), 24–25.

[8] Robert Frank Futrell, *The United States Air Force in Korea, 1950–1953* (Washington, DC: Office of Air Force History, 1983), 27.

[9] Ibid., 33.

[10] The F-80 required stronger and longer runways than the F-51, which limited the bases it could use and how quickly a base suitable for the F-51 could be upgraded to make it available for the F-80. Runways had to be stronger because aircraft gross weights had doubled since World War II. Besides weighing more, jets also needed stronger runways because their smaller wheels had tire pressures of 200 pounds per square inch. In contrast, the tire pressure of World War II fighters was only 80 pounds per square inch. Still another problem with jets was their higher takeoff and landing speeds. This made it necessary for runways to be longer and smoother, as well as stronger. The need for longer runways was apparent in F-80 operations at Itazuke, Japan. See Joseph L. Albert and Billy C. Wylie, "Problems of Airfield Construction in Korea," in *Air Power: The Decisive Force in Korea*, ed. James T. Stewart (New York: D. Van Nostrand Company, Inc., 1957), 232–235. During the summer of 1950 it was not unusual for an F-80 carrying only two rockets and full drop tanks to hit the PSP (perforated steel platform) overrun before getting airborne. First Lieutenant George Thomas, 36th Fighter Squadron, interview, USAF Evaluation Group, Book 2, June 25–December 1950, Air Force Historical Research Agency (AFHRA), File K168.041-1, 11–12.

[11] Futrell, *The United States Air Force in Korea, 1950–1953*, 31.

[12] As Colonel Stanton T. Smith, commander of the 49th Fighter Bomber Group, noted, the "enemy troops were not too well indoctrinated in what airpower could do. Either that or they had a lot of guts, because we would time and time again find convoys of trucks that were bumper to bumper against a bridge that had been knocked out, and we'd go in to strafe them, and every man in the truck would stand up where he was and start firing his rifle at us. I don't think that I would have done that with the power that we were putting on them." Ibid., 85–86.

[13] Ibid., 94.

[14] General E.E. Partridge, Diary of Korea, June 29–July 6, 1950, AFHRA File K168.7014-1. Also see General Otto Paul Weyland, USAF oral history interview, November 19, 1974, AFHRA File K239.0518-813, 195–196.

[15] For an excellent treatment of the frustration for Air Force officers caused by Douglas MacArthur's staff, see Weyland interview, especially 196–200. Generally speaking few, if any, of the general headquarters (GHQ) staff had previous experience involving the

employment of airpower. Moreover, despite recommendations by Airmen, there had been little joint training to teach the GHQ about official doctrine for Army–Air Force operations. See O.P. Weyland, *Some Lessons of the Korean War and Conclusions and Recommendations Concerning USAF Tactical Air Responsibilities*, October 10, 1950, AFHRA File K720.609B. Brigadier General Edward J. Timberlake, Fifth Air Force Deputy Commander of Operations, observed that the staff of Eighth Army "did not exactly go along with the idea that we [Fifth Air Force] were on a parity with them and we were their opposite numbers." See Futrell, *The United States Air Force in Korea, 1950–1953*, 119. Air Force officers were not the only ones excluded when the Army made plans. Before Inchon, a critical conference excluded key Marine generals. See D. Clayton James, *Refighting the Last War: Command and Crisis in Korea 1950–1953*, with Anne Sharp Wells (New York: The Free Press, 1993), 166.

[16] O.P. Weyland, "FEAF [Far East Air Force] Report on the Korean War," February 15, 1954, AFHRA File 720.04D, 52. One Army officer, a World War II infantry veteran serving in the joint operations center, stated, "It is my firm belief that the average infantryman on the frontlines has no idea or conception of this effort placed in the rear area to halt the enemy. I do not believe that you can go along with the doctrine of placing a terrific amount of support directly in front of the infantry, or in other words, using airborne artillery. I think that is a waste of aircraft and a waste of money." Major White, USA, interview, November 15, 1950, USAF Evaluation Group, June 25–December 1950, AFHRA File 168.041-1, 11–12.

[17] Weyland, "FEAF Report on the Korean War," AFHRA File K720.609B.

[18] Letter, General Partridge to General Walker, August 4, 1950, AFHRA File K720.13A.

[19] In what seems to be a surprising admission of ignorance for an officer about to become a theater commander in chief, Ridgway also admits that MacArthur pointed out to him the importance logistically, psychologically, and politically of recapturing Inchon and Seoul. See Matthew B. Ridgway, *The Korean War* (New York: Doubleday, June 1967), 107.

[20] Omar N. Bradley, *A General's Life: An Autobiography by General of the Army Omar N. Bradely*, with Clay Blair (New York: Simon and Schuster, 1983), 543–544; and Futrell, *The United States Air Force in Korea, 1950–1953*, 48.

[21] Futrell, *The United States Air Force in Korea, 1950–1953*, 53–55. Also see Weyland, "FEAF Report on the Korean War," 195–201.

[22] Futrell, *The United States Air Force in Korea, 1950–1953*, 138–139.

[23] It took an average of 13.3 runs to destroy a bridge. In an effort to increase accuracy, FEAF requested deployment of RAZON (1,000-pound) and TARZON (12,000-pound)

radio-controlled bombs. Unfortunately, despite some successes, equipment problems were to end the effort to employ guided bombs. Ibid., 130, 320.

[24] Blair, *The Forgotten War*, 281.

[25] Futrell, *The United States Air Force in Korea, 1950–1953*, 168–175.

[26] Eliot A. Cohen and John Gooch, *Military Misfortunes: The Anatomy of Failure in War* (New York: The Free Press, 1990), 179.

[27] Airmen had applied a lesson from World War II where the "Horsefly" airborne forward air controller (FAC) concept using a light aircraft had been developed. The airborne FAC, with its ability to fly at slow airspeeds while at low altitudes, was able to make fighters far more effective and efficient by finding enemy troop concentrations and also managing air attacks conducted in close proximity to friendly ground forces. To perform this mission, Airmen determined that the unarmed, but speedy, T-6 trainer aircraft equipped with eight-channel radios was the most suitable aircraft. Given the call sign "Mosquito" on July 15 by Fifth Air Force, these aircraft, based at Taegu Air Base, began making FEAF air operations even more effective. Futrell, *The United States Air Force in Korea, 1950–1953*, 83.

[28] Bradley, *A General's Life*, 554.

[29] Blair, *The Forgotten War*, 263.

[30] Lieutenant General George E. Stratemeyer's diary, vol. 2, September 16–December 16, 1950, AFHRA File K168.7018-16.

[31] Ibid.; Weyland interview, 109–111.

[32] Bradley, *A General's Life*, 567–568.

[33] Futrell, *The United States Air Force in Korea, 1950–1953*, 160–161, 180–181.

[34] Inchon lacked piers and had only five berths in the tidal basin. Ibid., 177, 220–221.

[35] Futrell, *The United States Air Force in Korea, 1950–1953*, 180, 208.

[36] "HQ Fifth Air Force Memo for Record on 22 October 1950 Meeting on Airlift to Pyongyang Attended by Eighth Army Chief of Staff, Major General Allen, Colonel Dabney, G-3, Colonel Steblens, G-4, and Brigadier General Timberlake, Fifth Air Force Vice Commander," AFHRA File K168.041-1, vol. 6 (part 4). Also see Futrell, *The United States Air Force in Korea, 1950–1953*, 201–202.

[37] Eighth Army had 1½ days' worth of ammunition and 4 days of food. See Cohen and Gooch, *Military Misfortunes*, 184.

[38] Futrell, *The United States Air Force in Korea, 1950–1953*, 222.

[39] Bradley, *A General's Life*, 583–587.

[40] James, *Triumph and Disaster 1945–1964*, 528.

[41] During their October 15 meeting on Wake Island, President Harry S. Truman had asked MacArthur what were the chances the Chinese or Soviets would intervene. MacArthur answered, "Very little. . . . The Chinese have 300,000 men in Manchuria. Of these probably not more than 100,000 to 125,000 are distributed along the Yalu River. Only 50,000 to 60,000 could be gotten across the Yalu River. They have no air force. Now that we have bases for our air force in Korea, if the Chinese tried to get down to Pyongyang there would be the greatest slaughter." See Bradley, *A General's Life*, 575.

[42] Futrell, *The United States Air Force in Korea, 1950–1953*, 228–229.

[43] 6147th Tactical Control Squadron (Airborne) History, July–October 1950, AFHRA File K-SQ-AW-6147-HI. Also see J. Farmer and M.J. Strumwasser, *The Evolution of the Airborne Forward Air Controller: An Analysis of Mosquito Operations in Korea*, RM-5430-PR (Santa Monica, CA: RAND, October 1967), 30–33.

[44] The Mosquito Squadron commander observed that "Ground commanders seem reluctant to let airborne controllers out of his [*sic*] sight. This has been more noticeable each day since the airborne controller assumed the division identification. Less thought is being given to the enemy's build-up fifteen to thirty miles behind his lines." Much of this reluctance could be traced to the Army's shortage of communications required by Army doctrine, which made it dependent on the Air Force's Mosquito and tactical air control parties for relaying air requests. See Farmer and Strumwasser, *The Evolution of the Airborne Forward Air Controller*, 33–34, 57–58.

[45] According to Ridgway, MacArthur "decried the value" of airpower "flatly" stating that it could not "isolate the battlefield or stop the flow of hostile troops and supply." See Ridgway, *The Korean War*, 82. Ridgway seems to have shared MacArthur's seriously flawed perspective of air interdiction's capabilities and limitations. He notes that "we had in Korea a prime example of how mistaken it is to imagine that an enemy's supply lines can be interdicted through air power alone." See Ridgway, *The Korean War*, 75.

[46] Stratemeyer diary, November 7, 1950.

[47] Ibid., 197.

[48] Stratemeyer diary, November 18, 1950.

[49] Futrell, *The United States Air Force in Korea, 1950–1953*, 232. Also see "Study on Fifth Air Force Command Use of Forces Available," AFHRA File K730.3102-25.

[50] Brigadier General Bradley, Assistant Division Commander, 2nd Infantry Division, wrote, "It is my very definite opinion that had it not been for the closest cooperation and all-out help given by your close air support, we would not have gotten through that block [south of Kunuri] in any order at all. Never before have I had metallic links from [fighter] MG fire drop on my head, nor have I seen napalm splash on the road. The support was that close. That needed close support sealed up the machine gun and mortar fire in the pass, which was holding up our vehicular movement on a one-way road. . . . Please convey to your little fellows my deepest appreciation. They materially helped in saving some 8,000 dough boys." See Stratemeyer diary, December 26, 1950.

[51] D. Clayton James, *The Years of MacArthur: Triumph and Disaster 1945–1964* (Boston: Houghton-Mifflin, 1985), 536; and Partridge diary, 224.

[52] His memorandum explained that United Nations Command ground forces should instead conduct a withdrawal. A withdrawal would have the advantage of "extend[ing] the Chinese LOCs [lines of communications] to such a point that thousands would freeze to death besides thousands killed by air—lengthen Chinese LOCs and our's shortened—eliminates great property loss on the part of Army and AF that would result from forced evacuation from beachhead. Admiral Joy tells him [it] takes 6 days to evacuate [division] from Inchon [with] 5,000 tons [maximum capacity] . . . staying in Seoul all landlines, FM relays and many VHF stations would be lost. Comm[munications] bad now and would practically stop by going into beachhead. Strongly recommends 8th Army *not* take up beachhead defense in Seoul-Inchon area & ASAP X Corps evacuate by water to Pusan." Stratemeyer diary, December 6 and 7, 1950.

[53] Stratemeyer's memo explains MacArthur's sudden turnabout that puzzled Blair. See Blair, *The Forgotten War*, 532.

[54] Partridge diary, December 17, 1950, 253–254.

[55] Russell Spurr, *Enter the Dragon: China's Undeclared War Against the U.S. in Korea, 1950–1951* (New York: Newmarket Press, 1988), 239, 251–252.

[56] The result was even more enemy casualties, inflicted directly by airpower or indirectly by denying the enemy shelter from the bitter Siberian cold. Futrell, *The United States Air Force in Korea, 1950–1953*, 261–264.

[57] Chinese prisoners of war reported carrying 65-pound packs to make up for supplies destroyed by airpower. Marching at night in poor terrain made the soldiers drip with perspiration at the end of a night's march. Despite the extreme cold, they were not allowed to build fires to dry their clothes or cook for fear of air attack. See Alexander L. George, *Interdiction Bombing Experiences of Selected CCF and North Korean Army Units*, report no. 4, Project RAND, May 11, 1951, AFHRA File 730.3102-25.

[58] Edwin P. Hoyt, *The Day the Chinese Attacked: Korea, 1950* (New York: Paragon House, 1993), 167; and Spurr, *Enter the Dragon*, 119, 239, 250, 253, 308. Also see Futrell, *The United States Air Force in Korea, 1950–1953*, 261–264; Stratemeyer diary, December 6, 1950, and February 13, 1951; and George, *Interdiction Bombing Experiences of Selected CCF and North Korean Army Units*.

[59] The press release stated that "our field strategy, initiated upon Communist China's entry into the war, involving a rapid withdrawal to lengthen the enemy's supply lines with resultant pyramiding of his logistical difficulties and an

almost astronomical increase in the destructiveness of our airpower has worked well. In the development of this strategy the 8th Army has achieved ideal tactical successes through maximum exploitation of the air's massive blows on extended enemy concentrations and supplies." Stratemeyer diary, February 13, 1951.

[60] Otto P. Weyland, "The Air Campaign in Korea," *Air University Quarterly Review* 6, no. 3 (Fall 1953), 14.

[61] Ibid., 17.

[62] Ibid., 17–18.

[63] Ibid., 26.

[64] Ibid.

[65] To appreciate the critically important role air interdiction played in Allied success in World War II, see *A German Evaluation of Air Interdiction in World War II*, United States Air Force Assistant Chief of Staff Studies and Analysis, November 1970. One of many officers quoted was General Walter Warlimont, OKH (Army High Command) operations officer, who said of the German commanders in France: "All were discouraged by the Allied overpowering air force. They said that whatever they [the Germans] planned was impossible to execute and control because the Allied air force spotted and attacked every movement."

[66] As was evident during Operation *Desert Storm*'s battle of Al Khafji, the E-8 Joint Surveillance Target Attack Radar System makes it possible for U.S. forces to detect and target enemy vehicles moving throughout a large area, even when they move at night or during bad weather. With the fielding of the Small Diameter Bomb II, it now becomes possible to hit and destroy these moving targets at any time and in all weather conditions.

[67] See R. Russell Rumbaugh, "The Best Man for the Job," *Joint Force Quarterly* 75 (4th Quarter 2014), 91–97.

[68] Joint doctrine treats ground maneuver differently from air interdiction by calling for a Joint Targeting Process Authority, while failing to call for a Joint Maneuver Process Authority that could ensure ground maneuver is designed to assist air interdiction in the defeat of the enemy army. See Joint Publication 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017), III-27.

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China's current military reforms are unprecedented in their ambition and in the scale and scope of the organizational changes. Virtually every part of the People's Liberation Army (PLA) now reports to different leaders, has had its mission and responsibilities changed, has lost or gained subordinate units, or has undergone a major internal reorganization.

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Soldiers jump with Finnish, Polish, and Estonian special operations forces from Lockheed C-130 Hercules during airborne operations over Rovaniemi, Finland, as part of Finnish-led Northern Griffin, March 14, 2018 (U.S. Army/Kent Redmond)

Beyond the Gray Zone
Special Operations in Multidomain Battle

By James E. Hayes III

I n their quest to alter the post–Cold War world order, revisionist nations such as Russia, China, and Iran are increasing their military capabilities to challenge the traditional U.S. supremacy in arms. These potential adversaries are also linking their growing military power to a willingness to employ it in an integrated fashion with informa-

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tional, economic, political, and technological means to achieve their objectives, often while remaining below the threshold of a decisive U.S. response. To counter this new threat paradigm, the U.S. Army and Marine Corps have developed a joint operational approach known as multidomain battle (MDB). Although it remains in the conceptual phase, both Services envision MDB as the combined arms concept for the 21st century based on the assumption that future near-peer adversaries will contest U.S. superiority in all domains:

on land, at sea, in the air, and throughout the electromagnetic spectrum.[1] MDB's animating principle, therefore, is the employment of ground forces to gain temporary windows of advantage against a near-peer foe in order to enable other components of the U.S. joint force.

In their evolution of the MDB concept, Army and Marine senior leaders assume that U.S. special operations forces (SOF) will play a critical, albeit currently undefined, role. This is a valid assumption given the lessons learned from the

past 15 years of combat in Afghanistan and Iraq, not the least of which is the idea that conventional and SOF formations must operate in an *integrated* and *interdependent* manner in order to ensure success on the modern battle-field. Integration and interdependence lie at the heart of MDB, as the concept envisions SOF conducting activities in support of conventional forces and vice versa. But what specifically should we expect SOF to do within the context of MDB? What unique function could SOF play in assisting the joint force to counter this new threat paradigm?

Current Value

Perhaps the best point of departure for envisioning SOF's potential role in MDB is to examine what they currently offer the joint force. To that end, Joint Publication 3-05, *Special Operations*, provides a comprehensive definition of SOF characteristics:

Special operations require unique modes of employment, tactics, techniques, procedures, and equipment. They are often conducted in hostile, denied, or politically and/or diplomatically sensitive environments, and are characterized by one or more of the following: time sensitivity, clandestine or covert nature, low visibility, work with or through indigenous forces, greater requirements for regional orientation and cultural expertise, and a higher degree of risk. Special operations provide joint force commanders and chiefs of mission with discrete, precise, and scalable options that can be synchronized with activities of other interagency partners to achieve United States Government objectives.[2]

Thus, SOF are by design organized, trained, and equipped to succeed in environments where the enemy may dominate one or more domains. This idea comports with the popular view of special operations: namely, a small team of highly trained operators conducting missions in enemy-controlled territory. While relevant, this viewpoint does not illustrate the totality of SOF capabilities, nor does it represent the unique character of SOF. Rather, it is SOF's ability to

operate jointly at the tactical level to influence the human domain for strategic and operational effects that truly sets it apart. SOF's broad range of missions dictates the need for small, purpose-built task forces consisting of ground, maritime, and air elements optimized to engage in the irregular, population-centric conflicts occupying the contested space between war and peace. This space, known colloquially as the Gray Zone, has become the focus of SOF's recent efforts against terrorism and insurgency across the globe and has increasingly defined its raison d'être when compared to conventional forces.[3]

U.S. Army Special Operations Command further refines this understanding of SOF's role in Gray Zone conflict with the following value propositions: precision targeting operations, crisis response, indigenous approach, and developing understanding and wielding influence.[4] While originally crafted to showcase Army SOF's strategic value to the Nation, these propositions can be generally applied to special operations units from the other Services as well. The first two value propositions—precision targeting operations and crisis response—address the more well-known components of SOF such as unilateral direct action and counterterrorism missions that employ exquisitely refined targeting processes and highly trained, rapidly deployable and scalable formations. These capabilities provide options for senior decisionmakers throughout the spectrum of conflict, in addition to buying time and space for longer term Gray Zone activities to gain traction.

The latter propositions—indigenous approach and developing understanding and wielding influence—speak to the indirect side of SOF Gray Zone operations. They emphasize operating among local populations as well as by, with, and through partner forces in order to deliver strategic and operational effects. Accordingly, these propositions require SOF operators who are proficient in not only traditional combat skills but also language and cultural understanding. The mission sets that best exemplify this indirect side of Gray Zone activities

are unconventional warfare and foreign internal defense. Like opposite sides of a coin, unconventional warfare entails the employment of SOF to support an indigenous resistance movement against a hostile power, whereas foreign internal defense calls for SOF operators and conventional forces alike to assist a friendly government in defeating an insurgency or other forms of domestic lawlessness.

As mentioned, both the direct and indirect sides of SOF outlined in the value propositions are important to the conduct of operations in the Gray Zone. However, only those activities focused on the human domain in contested or denied environments are truly unique to SOF and not duplicated by conventional forces. For example, a U.S. Marine Expeditionary Unit possesses the capability to conduct direct action and other crisis response–focused missions and, under certain circumstances, may be better suited to the task than an equivalent SOF formation. On the other hand, only SOF are specifically trained and equipped for joint operations to advise, assist, and employ local resistance fighters and other irregular forces to act in support of U.S. interests. This optimization for operating with indigenous partner forces in the Gray Zone is what makes SOF "special" and consequently offers the greatest potential for contributions to MDB.

SOF and the Physics of MDB

In its description of an approach for fighting a technologically sophisticated near-peer adversary, the Army's MDB white paper identifies multiple emerging enemy capabilities that will negate traditional U.S. strengths in a future conflict. Topping this list are modernized integrated air defenses and long-range precision strike capabilities that provide adversaries with the ability to deny U.S. forces freedom of movement while shielding theirs from preemptive or retaliatory strikes.[5] This ability to prevent access to a theater of operations and then threaten forces operating there undermines two longstanding tenets of American warfighting: naval and air supremacy. Since the Korean War, U.S. ground forces have been unencumbered

Green Berets assigned to 7th Special Forces Group (Airborne), Operational Detachment-A, prepare to breach entry point during close quarter combat scenario as part of Exercise 2-16 at Marine Corps Air Ground Combat Center, Twentynine Palms, California, February 10, 2016 (U.S. Air Force/Efren Lopez)

by threats emanating from both the sea and air due to the joint force's overwhelming superiority in those domains. Likewise, since the end of the Cold War, U.S. maritime forces have operated with virtual impunity on the seas with no peer navy able to challenge the status quo. Looking forward, U.S. joint force commanders will no longer enjoy these longstanding advantages. U.S. aircraft will fight to remain in, much less, control the sky. Concurrently, American warships will contend with sophisticated threats above, below, and on the surface of the sea and accept losses not seen since World War II in order to protect vital maritime lines of communication.

Adversaries' growing capability to deny U.S. forces' access and freedom of maneuver will also lead to their dominance in the reconnaissance/counter-reconnaissance fight.[6] Free from U.S. strikes, enemy intelligence, surveillance,

and reconnaissance (ISR) systems will have virtual free reign of the battlespace, affording adversary commanders greater situational awareness while rendering U.S. forces blind. Combined with an aggressive cyber and electronic warfare campaign that degrades command and control systems, enemy formations could paralyze U.S. joint force commanders' ability to understand the operational environment and direct forces to positions of relative advantage.

By applying their experience working in the Gray Zone, SOF can assist in ameliorating these operational challenges by offering other components of the joint force temporary windows of advantage over enemy strengths. For instance, SOF conducting unilateral raids from the land, sea, and air against enemy antiaccess/area-denial (A2/AD) capabilities can support U.S. conventional forces' freedom of maneuver while presenting an adversary

with multiple dilemmas throughout the battlespace.

SOF contributions during the initial phase of Operation *Iraqi Freedom* offer a clear historical example of this employment method and its efficacy. During the outset of the campaign, SOF teams operating under the direction of the U.S.-led Combined Forces Special Operations Component Command (CFSOCC) conducted multiple strikes in all domains to set the conditions for the coalition's conventional land, maritime, and air components. Army special operations aviators fired the first shots of the war to destroy Iraqi border observation posts on the country's western and southern borders, thereby depriving Saddam Hussein of his most reliable early warning net.[7] This action was soon followed by Rangers and Special Forces infiltrating Iraq's western desert to conduct counter–theater ballistic missile

operations. Backed by coalition airpower, these teams conducted a series of complex direct-action raids that effectively prevented Saddam from threatening Israel and Jordan with Scud missiles while denying his ground forces access to Iraq's western approaches. In the Arabian Gulf, SEALs and their Polish SOF counterparts assaulted key infrastructure along the waterways near Al-Faw Peninsula in order to secure maritime access points for coalition naval vessels.[8]

In addition to direct action, SOF employing their Gray Zone expertise in MDB can assist in regaining the initiative in the reconnaissance/counter-reconnaissance fight. SOF ground and maritime reconnaissance teams provide the capability to emplace persistent eyes on enemy targets in order to meet joint force commanders' intelligence requirements, thereby filling a gap left by the loss of ISR platforms due to enemy action, weather, or other adverse battlefield conditions. As necessary, these teams can quickly transition from reconnaissance to other missions as the battlefield situation evolves, and even assist in tipping and queuing airborne ISR platforms once conditions are set for their re-introduction into the fight.

CFSOCC's experience in Iraq also illustrates the value of SOF in the unilateral reconnaissance role. Special forces with attached Air Force combat controllers provided vital information on enemy dispositions at the Karbala Gap and other key chokepoints along the coalition axis of advance and continued their reporting despite sandstorms that grounded other ISR assets.[9] Like their direct-action brethren, these SOF derived much of their success from previous deployments to the Middle East conducting foreign internal defense and other Gray Zone activities. Their operators possessed a deep, tactile understanding of the operational environment as a result of repeated interactions during this pre-hostilities phase and could therefore exploit that knowledge once combat operations commenced.

Unilateral operations aside, SOF teams working by, with, and through indigenous surrogate forces are also a potent tool to counter adversary cross-domain threats and, in many instances, provide more enduring effects. Indigenous forces offer SOF and, by extension, the joint force commander a more comprehensive understanding of the operational area and insights on the human domain that can be leveraged against an adversary. SOF teams conducting unconventional warfare, unlike their counterparts tasked with unilateral missions, can mass indigenous forces to destroy enemy air and maritime A2/AD capabilities and then occupy those locations in order to prevent regeneration. Due to their connection with the local populace and ability to threaten enemy lines of communication, SOF—paired with indigenous forces—can also redirect enemy resources from opposing U.S. conventional land forces to conducting a manpower-intensive counterinsurgency effort. Thus, SOF teams working in the human domain offer the joint force commander opportunities to shift battlefield dynamics to U.S. advantage with a minimum investment in personnel and material assets.

History abounds with examples of the cross-domain, force multiplication effects of SOF operating with indigenous forces. Looking back to World War II, the Office of Strategic Services (the forerunner of present day SOF and intelligence organizations) fielded numerous units that assisted resistance movements in Europe and Asia. These organizations and their locally raised counterparts gathered intelligence, rescued downed aircrews, and tied up thousands of enemy troops in counterguerrilla operations, all of which set the stage for conventional Allied offensives against the Axis powers.

The Office of Strategic Services' Detachment 101 offers a powerful example of SOF's cross-domain potential with indigenous partners. Formed in 1942 after the Allied defeat in Burma by the Japanese Imperial Army, Detachment 101 recruited and trained thousands of Burmese Kachin tribesmen for missions deep in enemy-held territory. In addition to earning credit for the highest kill/loss ratio of any unit in U.S. military history (killing or wounding over 15,000 Japanese soldiers while losing fewer than 400 unit members), Detachment 101 maintained a persistent presence in Japanese-controlled Burma and, in doing so, provided temporary windows of advantage to other components of the Allied joint force operating in the China-Burma-India theater. In support of the Allied air component, Detachment 101 elements designated targets for 75 percent of the 10th U.S. Air Force bombing missions and rescued 425 Allied airmen from capture.[10] Additionally, Detachment 101's fierce Kachin guerrillas raided numerous Japanese airfields, thereby degrading the enemy's air superiority from the ground. Their operations to harass Japanese lines of communication also bought time for the British 14th Army and other conventional Allied ground units to reform and reorganize after their initial setbacks, and then set the conditions for their successful counteroffensives in Burma during the latter stages of the war.

CFSOCC's activities during the opening phase of Operation *Iraqi Freedom* in April of 2003 delivers a more recent example of SOF paired with indigenous forces for strategic and operational effects. In contrast to the unilateral operations of its southern and western task forces, CFSOCC's Joint Special Operations Task Force–North (JSOTF-N) enlisted the assistance of thousands of Kurdish Peshmerga fighters to achieve its objectives. JSOTF-N, while originally envisioned as the supporting effort to a conventional land assault from Turkey into northern Iraq, soon became the only force able to take the fight to Saddam's forces in the north once the Turkish government refused to grant the Army's Fourth Infantry Division permission to conduct operations from Turkish soil.[11] Undaunted, JSOTF-N's Special Forces infiltrated via Air Force special operations aircraft, linked up with their Peshmerga counterparts, and then facilitated a follow-on parachute drop of the Army's 173rd Airborne Brigade into northern Iraq. With the 173rd placed under the operational control of JSOTF-N, the combined U.S.-Kurdish team quickly defeated a unit of the terrorist group Ansar al-Islam before turning

Special forces launch surface-to-air missiles during training mission on Eglin Air Force Base, Florida, June 11, 2014 (U.S. Air Force/Tyler Woodward)

their attention to Saddam's forces fixed on the Green Line separating Iraq from the semi-autonomous Kurdish region. During the ensuing battles, JSOTF-N and their 60,000-strong Kurdish partner force attacked and defeated four Iraqi divisions, thereby preventing Saddam from repositioning significant forces to counter the coalition's main thrust against Baghdad.[12]

Upon closer examination, one discovers that JSOTF-N's victories in northern Iraq can be attributed in large part to the relationships established between SOF and Kurdish partners during pre-hostilities activities. In fact, many of JSOTF-N's senior officers and noncommissioned officers had participated in Operation *Provide Comfort* in 1991, during which SOF provided humanitarian relief to Kurdish refugees fleeing Saddam's reprisals after his defeat in the first Gulf War.[13] Consequently, these SOF leaders leveraged the trust established over a decade earlier to produce an indigenous force that opened a

second front against Saddam's forces. Like their predecessors in Detachment 101, JSOTF-N demonstrated the effectiveness of massed indigenous forces striking in the enemy's rear areas. As what's past is prologue, today's SOF aligned with willing partners can generate these same effects in support of other joint force components conducting MDB.

Engaging in the Nonkinetic Fight

Carl von Clausewitz opined about the distinctions between the moral and physical factors in war and, in doing so, emphasized the importance of the moral over the physical.[14] Recent events in Ukraine, Syria, and the South China Sea illustrate that potential adversaries recognize the importance of winning the psychological battle and are willing to devote considerable resources to that end. By using a combination of political subversion, information operations, and cyber activity, adversary nations proffer

a veneer of legitimacy for their objectives, foment unrest in target populations, and sow distrust and discord in Western institutions such as NATO and the European Union.

Accordingly, adversary nations will employ nonkinetic, psychological effects to enhance their more traditional military capabilities, employing them in tandem with conventional ground, maritime, and air forces or as the vanguard of aggressive military action against U.S. interests. Much like their physical A2/AD systems, potential enemies will manipulate the information sphere to stymie the U.S. joint force's ability to understand and shape the operational environment.

SOF's continuous presence conducting Gray Zone activities in over 80 countries in a given year provides the joint force a significant psychological deterrent against potential adversaries and can assist in regaining the initiative in the cognitive realm.[15] Prior to hostilities, SOF teams conduct foreign internal defense

missions to enhance the combat skills and professionalism of partner-nation military and paramilitary forces. As a result, partner forces' increased capability to provide security raises the confidence of the local populace, rendering them less susceptible to the effects of adversary propaganda and information operations. Concurrently, SOF teams training with foreign partners gain valuable insights on the operational environment with respect to the human domain that can be exploited by the joint force during subsequent combat operations against a near-peer adversary.

SOF military information support operations (MISO) teams are yet another nonkinetic tool to apply against adversary efforts to dominate the cognitive realm. Trained and organized specifically to influence both enemy and friendly audiences, MISO teams employ a wide array of outlets (radio, television, social media) to counter enemy propaganda and misinformation. MISO teams work with U.S. country teams, partner security forces, and other stakeholders to help win the battle of ideas and prevent adversaries from exploiting political, societal, and economic fault lines that can lead to conflict escalation.

This ability to fight the psychological battle passively (SOF teams working with partner security forces) and actively (MISO elements conducting influence operations) offers significant benefits to a joint force commander conducting MDB, particularly in an environment where other components are struggling to get into the fight. For example, SOF-trained security forces paired with effective MISO can prevent adversaries from fomenting civil unrest at partner-nation ports and airfields, thereby facilitating conventional U.S. ground and air element deployment into the theater of operations.

SOF's recent experience conducting Gray Zone activities against terrorists in the southern Philippines offers a glimpse of MISO's potential contributions to MDB. Deployed in 2002 to assist the Armed Forces of the Philippines in defeating the outlaw Islamist Abu Sayyaf Group (ASG), Joint Task Force–510

(JTF-510)—later renamed Joint Special Operations Task Force–Philippines—focused on working with the U.S. country team and its local Philippine partners in a comprehensive civil-military effort.[16] In contrast to the more kinetically focused SOF campaigns in Iraq and Afghanistan, JTF-510 took the opposite approach due in large part to historical Philippine sensitivities to American troops conducting operations on the archipelago.[17]

Targeting the main ASG stronghold on the island of Basilan, JTF-510 MISO teams established a robust information operations cell with a combined team of Philippine military, U.S. Embassy public affairs, and host-nation media outlets. By employing carefully designed radio, print, and television messages that legitimized the Philippine government and security forces, MISO operators working in the information operations cell complemented JTF-510's other lines of effort directed at foreign internal defense and conducting civil works projects with local communities on Basilan.[18] As a result, JTF-510 and its Philippine counterparts effectively isolated the ASG from the populace and secured Basilan from Islamist extremism.

Although JTF-510's success on Basilan was in many respects a product of the Philippines' longstanding ties to the United States and other unique circumstances, it does illustrate the power of a deftly crafted SOF information operations campaign influencing the human domain for outsized effects. When placed against the MDB template, we can envision such an effort influencing friendly audiences to resist the aggressive actions of a near-peer adversary in his homeland and consequently buying time and space for other components of the U.S. joint force to effectively respond.

Countering Russia's highly developed unconventional warfare capability is one potential use of SOF's expertise in the informational realm. As evidenced by the recent deployments to Crimea and Ukraine's Donbas region with its shadowy paramilitary fighters known as "Little Green Men," Russia seeks to undermine U.S. and Western interests through a sophisticated combination

of diplomatic, informational, military, and economic activities. The Russian government's ability to manipulate the information sphere is particularly significant, as its use of propaganda, misinformation, social media, and deception all combine to create a sense of chaos and uncertainty that helps attain Russian strategic objectives while remaining below the threshold of a conventional Western military response.[19] Accordingly, MISO teams are well suited to respond to this threat. By modifying tactics, techniques, and procedures developed in the Gray Zone in order to legitimize the actions of alliance partners in the Baltics and other regions threatened by Russia, information warriors can fight effectively against the aggressive designs of this near-peer competitor. Like their Russian adversaries, SOF MISO teams thrive in the "left of boom" pre-hostilities space. Their asymmetric advantage, however, comes in the form of integration with U.S. interagency community and partner-nation capabilities to deliver meaningful effects against threat messaging.

A Multidomain Tool, Not a Panacea

The demands of the future battlefield—characterized by increased lethality, complexity, and the loss of traditional U.S. supremacy in all domains—will certainly test the tactical skill and strategic acumen of SOF operators. To maximize SOF's effectiveness in this future fight, commanders must be willing to accept a greater level of risk to the force than has been customary during recent operations. We can safely assume that SOF teams conducting unconventional warfare and other dangerous tasks against a capable and determined near-peer adversary will not have the same protections afforded to their predecessors in Afghanistan and Iraq. Rather, SOF will most likely operate without the benefits of routine medical evacuation and fire support, as these assets may be degraded by enemy action, allocated against higher priority missions, or possess insufficient operating range to assist deployed teams. Therefore, like their conventional ground, maritime,

U.S. special operation forces operator fast ropes near Tallinn, Estonia, December 11, 2017 (U.S. Army/ Matt Britton)

and air compatriots, SOF must persevere in spite of losses suffered in a brutal and unforgiving operational environment to prevail in MDB.

Joint force commanders must also understand the limitations of SOF. Their numbers are few and should be allocated only against those strategic and operational targets offering the most potential benefit to the joint force. Additionally, SOF units lack many of the command and control, fires, and logistical capabilities required to conduct sustained operations and therefore remain dependent on conventional forces to provide this support. As mentioned, SOF operations focused on the human domain can provide windows of opportunity for other components of the joint force; however, these windows are temporary and subject to the fog and friction of war. SOF can set the conditions, but only conventional land, maritime, and air formations can provide decisive victory.

Indeed, SOF are uniquely positioned to support the joint force in MDB. Hardened by over a decade of counterterrorism operations and possessing a legacy

of delivering strategic and operational effects both unilaterally and by, with, and through indigenous forces, joint SOF teams are purpose-built to leverage the human domain in service to other components of the joint force on tomorrow's high-intensity battlefields. The time has come for SOF to take a step out of the Gray Zone without abandoning the lessons learned there and fully embrace their role in this future conflict. **JFQ**

Notes

[1] *Multidomain Battle: Combined Arms for the 21st Century* (Washington, DC: Headquarters Department of the Army, February 24, 2017), 1, available at <www.tradoc.army.mil/ MultiDomainBattle/docs/MDB_WhitePaper. pdf>.

[2] Joint Publication 3-05, *Special Operations* (Washington, DC: The Joint Staff, July 16, 2014), I-1, available at <www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_05. pdf>.

[3] Joseph L. Votel et al., "Unconventional Warfare in the Gray Zone," *Joint Force Quarterly* 80 (1st Quarter 2016), available at <http://ndupress.ndu.edu/Portals/68/Documents/jfq/jfq-80/jfq-80_101-109_Votel-et-al. pdf>.

[4] *ARSOF Value Propositions* (Fort Bragg, NC: U.S. Army Special Operations Command, March 12, 2016), 1.

[5] *Multidomain Battle*, 2.

[6] Ibid.

[7] Leigh Neville, *Special Operations Forces in Iraq* (New York: Osprey Publishing, 2008), 10.

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[9] Gregory Fontenot, E.J. Degen, and David Tohn, *On Point: The United States Army in Operation Iraqi Freedom* (Fort Leavenworth, KS: Combat Studies Institute Press, 2004), 54.

[10] William R. Peers and Dean Brelis, *Behind the Burma Road* (Boston: Little, Brown, and Company, 1963), 24.

[11] Fontenot, Degen, and Tohn, *On Point*, 78.

[12] Ibid., 90.

[13] Gordon Rudd, *Humanitarian Intervention: Assisting the Iraqi Kurds in Operation Provide Comfort, 1991* (Washington, DC: U.S. Army Center of Military History, 2004), 64, available at <https://history.army.mil/html/ books/humanitarian_intervention/CMH_70-78.pdf>.

[14] Carl von Clausewitz, *On War*, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 270.

[15] *Statement of General Joseph L. Votel, USA, Commander, U.S. Special Operations Command, Before the House Armed Services Committee, Subcommittee on Emerging Threats and Capabilities, March 18, 2015*, 1, available at <https://docs.house.gov/meetings/AS/ AS26/20150318/103157/HMTG-114-AS26-Wstate-VotelUSAJ-20150318.pdf>.

[16] C.H. Briscoe, "Balikatan Exercise Spearheaded ARSOF Operations in the Philippines," *Special Warfare* 17, no. 1 (September 2004), 21.

[17] While it should be noted that Joint Task Force–510's military information support operations elements constituted only one part of a holistic special warfare campaign that included Special Forces, SEALs, civil affairs, and conventional forces, influencing the local populace to reject the Abu Sayyaf Group through low-signature, indirect means constituted the central focus of JTF-510's mission in the Philippines.

[18] Briscoe, 22.

[19] *Little Green Men: A Primer on Modern Russian Unconventional Warfare, Ukraine 2013–2014* (Fort Bragg, NC: U.S. Army Special Operations Command and Johns Hopkins University Applied Physics Laboratory, June 15, 2016), 17, available at <www.jhuapl.edu/ ourwork/nsa/papers/ARIS_LittleGreenMen. pdf>.

Cyber warfare operations journeyman monitors live cyber attacks on operations floor of 27th Cyberspace Squadron at Warfield Air National Guard Base, Middle River, Maryland, June 3, 2017 (U.S. Air Force/J.M. Eddins, Jr.)

A Smarter Approach to Cyber Attack Authorities

By Michael P. Carvelli

The highest levels of national power hold approval authority for any cyberspace operation that goes outside of a Department of Defense (DOD) network. An operational commander, who wants to conduct cyber attacks, submits a request seeking Presidential or Secretary of Defense approval.[1] If approved,

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the Chairman of the Joint Chiefs of Staff issues the authorization to U.S. Strategic Command, which then delegates execution to the commander of U.S. Cyber Command.[2] This process is inefficient, cumbersome, and needlessly complex. Operational commanders certainly shy away from cyber attacks because the authority to conduct them is restricted to national and strategic levels. The United States should delegate cyber attack authority to operational commanders, but it should impose restrictions on the authority

based on the attack's effects. To be sure, understanding the full implications of any attack is never absolute, but this caution in this instance needs to be balanced against the significant advantages conferred by attacking effectively first in cyberspace. A system of nationally preapproved cyber attacks would likely ensure that commanders have access to a menu of appropriate attacks while balancing concerns of the national leadership.

This article seeks to illustrate how restricted cyber attack authority enables

Soldier conducts cyberspace operations while supporting 2nd Armored Brigade Combat Team, 1st Infantry Division, during Danger Focus exercise at Fort Riley, Kansas, February 2017 (U.S. Army/Alvaro Luna)

operational commanders to attack effectively while at the same time mitigate unintended consequences. It provides recommendations for the restriction of cyber attack authority. In the last few years, several defense professionals argued for pushing cyber attack authority to the operational level.[3] This article thus explains how the delegation of cyber attack authority could balance the advantages and risks. By incorporating some limitations, it would be possible to ensure that operational commanders could safely employ cyber attacks against an adversary, which would minimize the risk of unintended consequences.

Cyberspace is the newest domain that DOD operates in.[4] It consists of three layers: physical, logical, and cyber persona.[5] The physical layer is composed of the locations in land, sea, air, and space where elements of the network reside; the hardware, software, systems software, and infrastructure (wired, wireless, cabled links, satellite, and optical) that support the network; and the connectors (wires, cables, radio frequencies, routers, switches, servers, and computers). The logical layer consists of how the physical network components relate to each other (that is, multiple servers host a Web site, which is accessed through a single URL). The cyber persona layer is the most abstract because it uses the rules of the logical layer to develop a digital representation of an individual or entity. These three layers combine to form networks that, when aggregated, form the cyberspace domain. Cyberspace is complicated and it is difficult to employ military force in it precisely because the domain is constructed of physical and nonphysical components.[6] Moreover, the nature of the cyber domain is one where small changes or disruptions occur in unpredictable ways.[7] The decision to execute a cyber attack should be limited due to the complexity of cyberspace and the risks confronted when releasing a cyber weapon.

Recent Adversary Activities

Yet the United States faces adversaries who have already shown their ability to employ cyber attack capabilities and act without regard for the proliferation of unintended effects. Over the past two decades, America's adversaries have demonstrated increasing skill, speed, and agility in their use of cyber attacks.

In 1999, following the accidental bombing of the Chinese embassy in Belgrade, Chinese hackers targeted U.S. Government Web sites, resulting in a White House–directed shut down of its official site.[8] This attack showed the ability of adversaries to inflict damage through cyber attacks on U.S. Government systems.

In the Russo-Georgian War of 2008, Russia used cyber attacks to disable the Georgian leadership's communications network prior to the movement of Russian forces into Abkhazia and South Ossetia.[9] This cyber attack shut down much of the Georgian government's communication inside Georgia and to the outside world, as well as created fear and discontent within the Georgian population. In addition to Russian cyber attacks in a conventional conflict, the Russian Federal Security Service coordinated an attack with private software firms and criminal hackers targeting Ukraine's power grid and financial system in the ongoing Russia-Ukraine conflict.[10] This hybrid attack, in conjunction with the conventional attack on Georgia, shows Russia's willingness to use cyber attacks in war and in conflicts short of war. The so-called Islamic State conducted a cyber attack in 2015 when the group hacked into the U.S. Central Command Twitter account and posted an image of a masked militant.[11] This attack displayed the ability of nonstate actors to attack the United States and achieve strategic effects in cyberspace. General James Mattis, then commander of U.S. Central Command, stated, "Our enemies operate within cyberspace . . . to plan, coordinate, recruit, train, equip, execute, and garner support for operations against the [United States], its allies, and interests."[12] Clearly, state and nonstate adversaries possess the capabilities to degrade and disrupt U.S. domestic and foreign military and nonmilitary operations, so it is time for the national leadership to give operational commanders the authorities they need in this new environment.

There are, of course, risks in granting operational commanders blanket cyber attack authority. Networks consist of physical (routers, switches, cables) and nonphysical (software, operating systems) elements that constantly and rapidly change. Likewise, obtaining full understanding of the second- and third-order effects of a cyber attack prior to execution is difficult, and joint task forces may not be able to determine fully the range of reactions that could occur.

Perhaps the most discussed instance of unintended consequences was Operation *Olympic Games*, more commonly known as the Stuxnet worm. The worm's designers intended to disable covertly Iranian centrifuges; however, it created irreversible damage to more than its intended target.[13] The worm spread and replicated itself globally creating irreversible damage to industrial control systems along the way. Although the United States and Israel allegedly created the weapon together with some of their best cyber teams, its effects were not fully known prior to its release.[14] The nature of the cyber domain—constantly changing in the physical, logical, and cyber persona layers—prevents fully understanding how a cyber attack will spread. Stuxnet is an example of a national-level cyber attack that authorities and designers resourced and built to create a specific effect, yet it unintentionally proliferated.

While Stuxnet offers an important cautionary lesson, it should not end the debate. Better balanced authorities could address the legitimate concerns of policymakers and the needs of the U.S. military. Limited cyber attack authority ensures that operational commanders can achieve operational objectives and account for the lack of complete knowledge of a cyber weapon's effects. Cyber attacks allow them to create positions of advantage to hasten the achievement of operational objectives. Commanders need the authority to employ cyber attacks in a constrained manner, even though they cannot be aware of every possible effect. The Stuxnet virus, designed with reversible effects, would have created the intended damage to Iranian centrifuges and left those affected with a way to prevent the virus's effects from creating further damage. When delegating cyber attack authority to operational commanders, they need to apply this lesson: account for unpredictable effects.

Design

Designing a cyber attack to create reversible effects is the best method to limit attack authority for operational commanders. Creating a cyber attack with reversible effects is possible. One example, a denial-of-service attack, floods a Web site with more traffic than it can handle, resulting in deterioration or temporary failure. When the attacker stops the deluge of Web traffic, he reverses the effects, resulting in normal operation.

Reversible cyber weapons offer considerable advantages over traditional kinetic weapons. Providing others (adversaries, allies, corporations, or the U.S. Government) the ability to reverse the damage allows them to mitigate a cyber attack's effects when these effects are unintended. Restricting an operational commander's authority to reversible damage ensures that if the cyber attack's effects reach catastrophic levels (for example, nuclear weapons command and control, national infrastructure), then the adversary could restore the system to the previous state. Limited cyber attack authority based on reversibility enables a commander to mitigate the cyber attack's unknowable propagation effects while maintaining his ability to attack effectively first. Operational commanders' authority, limited to reversible effects, allows any unintended consequences caused by the attack to change back to the status quo ante.

The current authorities' structure pushes commanders toward a bias in favor of using kinetic weapons due to the withholding of cyber attack authority at the highest levels of the U.S. Government. The following scenario demonstrates the methodology of approval for both weapon types.[15] Using an aerial-delivered munition to destroy a building or releasing a computer virus on a router can create the same desired effect. To attack the router, the commander requests approval from the President or Secretary of Defense. However, the operational commander

has the vested authority to bomb the building. Additionally, the kinetic attack approval process is comparatively short due to several factors: "comfort" with traditional munitions, understanding of collateral damage, and standard operating processes. By contrast, the lack of cyber weapon understanding and longer approval time entice commanders to preselect the building. Because the operational commander has the authority to approve the bombing, approval takes only minutes, whereas the time to approve the cyber attack can take from hours to days. Lieutenant General Edward Cardon, the former head of U.S. Army Cyber Command, reinforced this notion when he stated, "it should not be harder to use cyber than it is to use kinetic to accomplish your goal. Right now, it is in some cases."[16] Delegating limited cyber attack authority eliminates this selection bias and encourages commanders to use cyber weapons because they possess the authority to approve both cyber and kinetic attacks. If some sort of limited authority were delegated, then operational commanders could make an equally informed choice between the bomb and virus. Delegation of authority creates parity between the building and router, allowing the commander to evaluate the advantages and disadvantages inherent in each. This creates an environment in which operational commanders do not continually chose kinetic weapons over cyber weapons.

Attacking an adversary first within clearly defined limited cyber attack authority enables an operational commander to fight from a position of advantage without creating unacceptable risk. If designers were to create only reversible effects in a cyber attack, the operational commander would attack the adversary first, thus reducing the possibility of damage that his subordinates cannot change. Creating reversible cyber weapon effects lowers overall operational residual risk. Predicting how a computer virus will outbreak is extremely difficult due to the human nature of the attack.[17] Humans create the cyber weapon and any alteration in the weapon causes the weapon's effects to change. In addition,

any change to the three layers (physical, logical, and cyber persona) will affect the way in which the virus proliferates. These nuances make it difficult to predict the proliferation effects that the cyber weapon will cause once someone releases it. To account for this problem, cyber attack authority needs to be limited to design reversible effects thereby reducing residual risk. If the weapon's effects were to spread beyond the intended target, perhaps into the adversary's commercial sector, then the effects could be reversed, thereby lowering the possibility that widespread destruction would occur.

The difficulty in fully understanding a cyber attack risks creating disproportionate and indiscriminate effects from a cyber weapon's release. Cyber operations and weapons can cause more severe damage, or with consequences more widespread in space and time.[18] Using a cyber weapon within the context of the Law of Armed Conflict requires the weapon to be discriminate, distinct, and proportionate. Operational commanders and their staffs understand the relation between a bomb's effects on a target building and these three requirements. A cyber weapon's effects cannot be fully known; therefore, commanders need to find the cyber weapon's collateral damage acceptable when compared to the bomb. Designing the cyber weapon to have reversible effects ensures that if the anticipated effects are incorrect, then subordinates can control the effects. The same is not true for the bomb; once an airplane drops it, the bomb's effects are permanent. Designing the cyber weapon to generate reversible effects ensures that discriminate, distinct, and proportionate effects result when attacking an adversary.

Cyber attacks allow the United States to avoid the costs of kinetic destruction in terms of rebuilding or repairing infrastructure damaged in a conflict.[19] The costs of such damage can be staggering. However, if operational commanders had the authority to conduct limited cyber attacks, then they could lower the overall costs in comparison to destroying targets with kinetic weapons. For example, a commander could disrupt an electrical system with a cyber weapon instead

of destroying it with a kinetic weapon. This allows the attacking agent to repair the damage through cyber means at a lower cost when compared to the kinetic weapon's physical destruction. Reversible cyber attack effects offer benefits that the kinetic weapon cannot match. They permit the commander to set favorable conditions without permanently destroying important infrastructure. Limited cyber attack authority translates into cost savings depending on the intended target.

Preapproved Cyber Authorities

From the point of view of policymakers, a preapproved set of authorities should offer some solace and confidence in granting greater authority to operational-level commanders because it offers national leaders greater insight and control than they would have in a kinetic operation. From the point of view of the U.S. military, operational commanders, armed with preapproved cyber attack methods, can attack faster and with the least cost of blood and treasure. Limited cyber attack authority increases the options available to national authorities who choose how best to serve vital, core, and peripheral national interests. Granting national authorities greater control over military operations enhances the ways in which the military can achieve strategic and political objectives. Limiting cyber attack authority to reversible effects enables national and strategic authorities to make choices to accept, transfer, avoid, or mitigate military operational risks.[20] Part of this greater control is the preapproval of specific military operations that generate reversible effects.

There are several types of cyber attacks that national authorities need to preapprove: distributed denial of service, cryptographic, obfuscating, and resource-deception attacks. Distributed denial-of-service attacks use hundreds or thousands of compromised systems to force Web site failures and shutdowns or to deplete resources like bandwidth, memory, or processing capacities.[21] With either strategy, the attacker creates disruption ranging from inconveniences, to

Marine with Service Company, 7th Engineer Support Battalion, 1st Marine Logistics Group, participates in Exercise Deep Strike II, at Blythe, California, September 8, 2017 (U.S. Marine Corps/Timothy Shoemaker)

a lack of reliability for the Web site, and finally to a shutdown of the server and some delay until the restoration of Web services occurs.[22] Cryptographic attacks use encryption, which only the attacker knows, to encrypt key programs of the adversary; the attacker can later decrypt them.[23] Obfuscating attacks seek to rearrange the software and data of a computer system in a way known only to the attacker. After the attacker decides to end the attack, he can rearrange the system back to the status quo ante.[24] Resource deception deceives the adversary with illusory damage.[25] When the attacker reveals that he did not alter anything, this deception operation ends as the attacked party realizes what happened. These types of cyber attacks impart reversible damage to an adversary allowing the negation of the residual effects once the attack is complete. Preapproving these attacks grants national authorities greater oversight of specific military operations prior to execution.

In a scenario on the Korean Peninsula, operational commanders could use these four types of cyber attacks to mitigate risks of unintended consequences and provide options to restore North Korea's existing infrastructure at costs lower than those associated with kinetic weapons. A distributed denial-of-service attack, such as the one that U.S. Cyber Command allegedly conducted in 2017, provided temporary and nondestructive effects on North Korea.[26] U.S. Cyber Command turned off the attack, and there were no unintended consequences reported. Using a cryptographic attack aimed at North Korea's two oil refineries could disrupt the country's transport and agriculture production.[27] If the United States used this type of attack, it would disrupt North Korea's petroleum supply, affecting military vehicles and food production. When the United States decided to stop the effect, it could decrypt the attack to allow petroleum to return to normal supply levels. The United States could use an obfuscating attack, which would result in the same way as the cryptographic attack. Although the method is different, the effect is the same. Lastly, the United States could use a resource-deception attack if it decided to attack North Korea with military forces. The Nation could use this attack to deceive the North Korean military in a forced entry operation. If the United States seemingly attacked North Korean infrastructure in a resource-deception attack, the North Koreans might avoid certain routes because of perceived damage. This could provide the Nation with a marked advantage to use routes without the preponderance of North Korean military forces located near them. All of these examples of

preapproved attacks mitigate unintended consequences because they are temporary and nondestructive.

Preapproved cyber attacks decrease operational costs and lower risk to Servicemembers while increasing costs to the adversary. An adversary who relies on Web-based commercial enterprises can lose money quickly, depleting his financial resources. From the attacker's perspective, most costs to conduct a cyber attack, such as a distributed denial-of-service attack, do not change because they are fixed. For example, the costs of electricity, connectivity, computers, and personnel are part of normal expenditures. When compared to the employment of a fixed-wing aircraft to bomb a building, cyber attack expenses are significantly lower. Cyber attacks also limit the exposure of Servicemembers to physical hazards. Manned and unmanned aircraft need to fly near the target to deliver ordnance, exposing Servicemembers and high-cost equipment to the dangers of enemy fire. Cyber attacks do not face such physical hazards. In addition, cyber attacks require lower maintenance and fewer logistical needs in comparison to aircraft. The features of cyber attacks decrease the risks and costs that national authorities incur when selecting military operations to achieve political objectives.

Counterargument

There have been many arguments against pushing cyber attack authorities down to the operational level, but these fail to address the change in this new domain. Some argue that cyber attacks are more dangerous than kinetic attacks because of the inherent unknowns in cyberspace. Cyber attacks require precision in targeting that is unachievable due to time and intelligence collection requirements in comparison to kinetic weapons. Decades of military operations have shown the high degree of accuracy and precision with the employment of kinetic weapons. A cyber weapon's collateral damage is inherently greater than a kinetic weapon because unintended consequences cannot be fully known prior to

the cyber weapon's release. Employing a cyber weapon, even if designed with reversible effects, risks escalation if the weapon's effects target an adversary's sensitive networks. Yet this argument does not withstand scrutiny because the use and knowledge of cyber attacks are increasing exponentially in civilian and military circles. The time to develop the required precision in cyber targeting is decreasing rapidly. As cyber weapons proliferate, collateral damage estimates are becoming more accurate. Reversible effects ensure that collateral damage, when it occurs, can change to the status quo ante, thereby lowering escalation hazards. Lastly, kinetic weapons always result in death and destruction, while cyber weapons do not necessarily result in the same.

Others argue that operational commanders and their staffs cannot possibly design cyber attacks without vast resources to achieve reliable results with reversible effects. They say that operational staffs cannot reliably design reversibility into a cyber weapon. These critics might point to the error in the Stuxnet code that let it unintentionally spread and replicate itself globally.[28] They argue that the Intelligence Community and strategic commanders have the niche capabilities, resources, and knowledge to understand the complexities of the design of cyber weapons. The constantly evolving nature of cyberspace makes the quick design of a cyber weapon almost impossible. This argument does not stand because most countries communication systems, electric grids, and so forth use commercially available software and systems well known throughout the world, and "off the rack" cyber weapons could conceivably meet such needs. Not every cyber weapon requires individual construction to achieve desirable effects against an adversary. Operational staffs have robust intelligence, operations, and communications sections capable of assessing adversary networks. If existing staffs were unable to conduct cyber planning and targeting, U.S. Cyber Command has two types of support teams to augment their cyber planning and targeting capabilities. There are

27 combat mission teams generating integrated cyberspace effects in support of operational plans and contingency operations in their support to combatant commands.[29] In addition, 25 support teams provide analytic and planning support to the national mission and combat mission teams.[30] Both teams could augment and aid operational commanders and their staffs to conduct cyber attacks through their assigned combatant command. Preapproved cyber attack methods provide operational commanders the ability to attack adversaries within existing resource limitations.

The nature of cyberspace challenges military leaders to apply force within legal, ethical, and resource limitations. Many unknowns exist and persist that certainly provide operational commanders with challenging but surmountable obstacles in the application of military force in cyberspace. It is in the best interest of policymakers to grant, yet limit, cyber attack authority to hedge greater risks in operational-level decisions that use cyber weapons. Operational commanders face adversaries capable of degrading and destroying military capabilities; they need to be armed with as many tools as possible to achieve objectives. Limited cyber attack authority expands the available set of tools. Cyber weapons need to be made available to operational commanders to pursue national interests through military operations. In cyberspace, offense has the upper hand.[31] The best way to provide operational commanders with the ability to attack an adversary includes providing them with limited cyber attack authority based on the reversible effects of the cyber weapon. Reversible effects lower the risk inherent in military operations and mitigate unintended consequences. National authorities gain greater control over military operations in preapproving cyber attack methods. They also gain access to more military options to select in the event of a crisis. National authorities need to grant limited cyber attack authority to operational commanders so they can achieve operational, strategic, and political objectives aligned with vital, core, and peripheral national interests. **JFQ**

Notes

[1] The Department of Defense (DOD) includes cyber attacks in a larger category referred to as "offensive cyberspace operations." This article refers to all offensive cyberspace operations as cyber attacks. DOD defines *offensive cyberspace operations* as "Missions intended to project power in and through cyberspace." See Joint Publication (JP) 3-12, *Cyberspace Operations* (Washington, DC: The Joint Staff, June 8, 2018), GL-5.

[2] Maren Leed, *Offensive Cyber Capabilities at the Operational Level* (Washington, DC: Center for Strategic and International Studies, 2013), available at <www.csis.org/analysis/offensive-cyber-capabilities-operational-level>.

[3] Rosemary M. Carter, Brent Feick, and Roy C. Undersander, "Offensive Cyber for the Joint Force Commander," *Joint Force Quarterly* 66 (3rd Quarter 2012), 22–27, available at <http://ndupress.ndu.edu/JFQ/Joint-Force-Quarterly-66.aspx>; James E. McGhee, "Liberating Cyber Offense," *Strategic Studies Quarterly* 10, no. 4 (Winter 2016), 46–63, available at <www.airuniversity.af.mil/SSQ/>; Musa A. Samad, "Cyber Operations: Putting MAGTF Commanders in Control," *Marine Corps Gazette* 99, no. 7 (July 2015), 20–23, available at <www.mca-marines.org/gazette/2015/07/cyber-operations>.

[4] DOD defines *cyberspace* as a "global domain within the information environment consisting of the interdependent networks of information technology infrastructures and resident data, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers." See JP 3-12, GL-4.

[5] Ibid., I-2–I-4.

[6] Paul W. Phister, "Cyberspace: The Ultimate Complex Adaptive System," *The International C2 Journal* 4, no. 2 (2010), 13, available at <www.dodccrp.org/files/IC2J_v4n2_03_Phister.pdf>.

[7] Ibid.

[8] Jeffrey Hunker, *Cyber War and Cyber Power: Issues for NATO Doctrine*, Research Paper No. 62 (Rome: NATO Defense College, November 2010), 3, available at <www.files.ethz.ch/isn/124343/rp_62.pdf>.

[9] Richard M. Cromwell, *War in the Information Age: A Primer for Information Operations and Cyberspace Operations in 21st Century Warfare* (Newport, RI: U.S. Naval War College, 2010), 18.

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USS *Nautilus* entering New York harbor August 25, 1958, after voyage under North Pole (U.S. Naval History and Heritage Command)

Military Transformation
Applying the Kotter Eight-Step Methodology for Change in the U.S. Armed Services

By Hassan M. Kamara

We should value the faculty of knowing what we ought to do and having the will to do it.
Knowing is easy; it is the doing that is difficult. The critical issue is not what we know but
what we do with what we know. The great end of life is not knowledge, but action.

—Admiral Hyman G. Rickover
San Diego Rotary Club, February 10, 1977

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The global security environment is unstable, characterized by concerns such as revisionism and breaches of international norms by powerful nation-states (Russia and China), development and proliferation of weapons of mass destruction, terrorism, persistent conflict, and worsening

global climate with implications for food security. These trends will likely persist in the future, and their grave strategic and operational implications for the Armed Forces necessitate continued military transformation. Given the inherent complexity of organizational transformation in the U.S. military, using a highly effective change management approach is vital for success. To this end, this article considers how the John Kotter Eight-Step Process for Leading Change can help the Services transform to attain their long-term modernization objectives. Through adaptive application of the tenets of the Kotter process for leading change, the military can successfully implement transformation initiatives in support of their long-term modernization objectives.

Using the Navy's successful nuclear propulsion transformation effort led by Admiral Hyman G. Rickover as a case, this article highlights the applicability and utility of Kotter's methodology to military transformation. By analyzing this highly successful mid–twentieth century military transformation through the lens of the Kotter change methodology, this article highlights insights that can help the Armed Forces adaptively apply the methodology to successfully prosecute contemporary transformation efforts. The article also highlights concerns that could cause a change effort to fail. John Kotter concurs "that major change will not happen easily for a long list of reasons" and identifies factors of failure in each step of the change process to caution change leaders.[1]

Admiral Rickover was known to be quite cantankerous and abrasive at times, and it seems this demeanor soured interpersonal relationships that could have strengthened his guiding coalition and ultimately helped his cause. Interestingly, these same personality traits—which are generally antithetical to the coalition-building tenet of the Kotter change methodology—also seemed to have helped Rickover spearhead the Navy's nuclear propulsion transformation. Some scholars share this observation. For example, Thomas B. Allen and Norman

Polmar write that Rickover's "ill-tempered nature was necessary" to realize the nuclear submarine.[2] Ultimately, the consistency of Rickover's transformation efforts with the Kotter change methodology helps explain why the change was successful and highlights insights for contemporary military transformation.

Concepts

A brief discussion of modernization and transformation is essential to fostering understanding and clarity in the ensuing analysis. In this article, *modernization* is defined as the progressive transition of the present or status quo, through transformation, into the future.[3] For the Armed Forces, modernization carries implications for every aspect of the institution (doctrine, organization, training, equipping, and others) based on inherent or nested transformation efforts.

Military transformation refers to specific changes a Service plans and implements over time that aggregate to realize modernization objectives. In other words, diverse transformation efforts in different areas within the Services aggregate over time to realize broader modernization objectives. Consistent with this understanding, the Army uses the DOTMLPF-P (doctrine, organization, training, materiel, leadership, personnel, facilities, and policies) framework as a change management tool to ensure synergy among individual transformation efforts, and with the status quo, to modernize the institution. The Army states that "change deliberately executed across DOTMLPF elements enables the Army to improve its capabilities to provide dominant land power to the joint force."[4]

Nuclear Transformation and the Kotter Change Model

The Kotter Eight-Step Process for Leading Change is an enduring methodology for successful change implementation. This methodology takes a holistic approach to realize lasting change. Among other things, the methodology advocates building a strong, enduring impetus for change that will inspire people and drive supportive

ensuing activities. By diligently aligning change efforts to the eight-step process, institutions can create conditions supportive of lasting, viable change.

Though Kotter's methodology originated and is primarily used in the private sector, it can be successfully applied to military transformation—with necessary adaptation for governmental bureaucratic nuances—for the ultimate modernization of the Armed Forces. This hypothesis is proved by successively highlighting the consistency of arguably one of the most prolific military transformation efforts since World War II—nuclear propulsion in the Navy—with the eight steps of the Kotter methodology for leading change. Some might argue that adapting what they view as primarily a change model for a business or company to change in the military is unrealistic given the expansive bureaucracies of the Services as well as civil-military concerns in interacting with Federal agencies outside the Department of Defense and industry. Through its study of the nuclear propulsion transformation case, this article shows that Kotter's methodology can be successfully applied to Service transformation in a way that mitigates the constraints to change inherent in Service bureaucracies, Congress, Federal agencies, and industry.

1. Create a Sense of Urgency. This is arguably the most important step in the change process because it advocates identifying and highlighting the enduring, urgent reasons for change to the organization or institution. This step provides the impetus that drives subsequent steps in the change or transformation process. A sense of urgency for change is arguably what the change agent needs most to enlist and motivate change activists and supporters within and without the organization. Writing on the importance of creating a sense of urgency in the initial step, Kotter states that "when the urgency rate is not pumped up enough, the transformation process cannot succeed and the long-term future of the organization is put in jeopardy." According to Kotter, the urgency rate "is when about 75 percent of a company's management is honestly convinced that business-as-usual is totally unacceptable."[5]

The U.S.-Soviet military rivalry during the Cold War fomented a sense of urgency that helped Rickover gain support for nuclear propulsion transformation within the Navy, Congress, and White House. Prior to the development of nuclear reactors for propulsion at sea, U.S. submarines used a combination of diesel combustion engines (which only ran, and charged the submarine's electric batteries, when it surfaced) and electric batteries (which powered the vessel when it was submerged). The batteries could only power submerged submarines for a relatively short time, and at rather slow speeds. The lack of submerged operational endurance and speed in U.S. submarines, coupled with the threat of a growing Soviet submarine force, created a sense of urgency for the development of nuclear propulsion. The military and technological competition with the Soviet Union reached a new high on October 4, 1957, when it successfully launched Sputnik 1 into orbit. The fiscally conservative Eisenhower administration needed to offset the apparent Soviet advancement with an American technological advancement. According to Dave Oliver, "To answer this Soviet technical challenge, President Eisenhower . . . looked for inexpensive answers. Controlling military spending was important to the President's domestic and military priorities."[6] Rickover's nuclear propulsion transformation efforts had produced its first prototype submarine, the USS *Nautilus*, at the relatively cheap cost of $70 million (made possible by the liberal use of used and refurbished parts). This economically produced prototype aptly suited the Eisenhower administration's preference for decreased military spending, while offsetting Soviet technological advancements. So, despite Rickover's apprehension about stressing the platform prematurely by attempting too great a feat, President Eisenhower used *Nautilus*'s submerged transition of the Arctic as his administration's response to Sputnik 1. The *Nautilus,* on successfully completing a submerged transit of the Arctic, altered the strategic balance of the Cold War by demonstrating the new U.S. ability to threaten the Soviet

homeland and military with a concealed, highly mobile, strategic nuclear strike capability.[7] This emergent strategic value lent an increased sense of urgency to Rickover and the Navy's transformation efforts and heightened the willingness in Congress and the White House to support the Navy's nuclear propulsion transformation.

2. Build a Guiding Coalition. Like the preceding step, this one is seminal in that it is essential for progress in the ensuing steps. The guiding coalition is typically a core group of people (approximately up to 50) who feel the urgency for change, share the underlying strategic vision of the change or transformation, and are committed to communicating and spreading the vision.[8] In other words, the people in a guiding coalition are deeply committed to implementing the change. Kotter concurs by writing that the "guiding coalition of people deeply feels the urgency."[9] The guiding coalition is typically diverse in that it comprises individuals from different areas of the institution who have the intellect, skills, and capacity within the organization's hierarchy to address the strategic challenges of the transformation effort. In many cases, the guiding coalition is comprised of powerful members within the organizational hierarchy. For major military transformation efforts, the guiding coalition is greatly helped by incorporating those powerful change agents outside the Services that have the power to influence or spur change in the Services—these are the Members of Congress and the President.

From the above understanding of a guiding coalition, it is apparent that Rickover was successful in large part because he built a capable and powerful guiding coalition to pioneer nuclear propulsion in the Navy. His coalition included some of the best civilian subject-matter experts in the nascent field of nuclear power. Oliver writes that "Rickover was in the habit of taking his own people to meet with experts in the burgeoning nuclear field." Among the experts Rickover consulted was Enrico Fermi, winner of the 1938 Nobel Prize for Physics.[10]

Rickover also recruited bright and capable naval officers. He selectively hand-picked well-respected officers from the submarine community. Theodore Rockwell concurs and writes of Rickover's "slow process of recruiting additional bright young engineers for his permanent headquarters staff." Among the recruited was Eugene P. "Dennis" Wilkinson, a submariner with eight war patrols during World War II, who would go on to captain the USS *Nautilus*, and the USS *Long Beach*, the Navy's first nuclear surface ship.[11] Among some of the talented naval officers Rickover interviewed and approved for hire was Admiral Elmo Zumwalt. Though he declined to work for Rickover in the nuclear submarine community, Zumwalt would go on to become the youngest Chief of Naval Operations.[12]

Rickover had the backing of powerful Members of Congress and the President in the nuclear propulsion transformation effort. Powerbrokers in Congress, such as Senator Brien McMahon (D-CT)— then Chair of the Joint Atomic Energy Committee—were part of Rickover's guiding coalition, and they helped him gain the organizational authority in the Atomic Energy Commission (AEC) necessary for successful transformation.[13] Additionally, through the cost-effective development and fielding of the USS *Nautilus*, Rickover gained the support of the Eisenhower administration, as well as the American public.

3. Form a Strategic Vision and Initiatives. A successful transformation effort requires a vision of the future that is easy to communicate and understand. This requirement is critical for cultivating rapid, widespread support for change across the organization. In other words, a clear and pragmatic vision that is consistent with the prevailing sense of urgency is vital to realizing meaningful transformation. Kotter writes that "without a sensible vision, a transformation effort can easily dissolve into a list of confusing and incompatible projects that can take the organization in the wrong direction or nowhere at all."[14]

While observing and studying nuclear reactor power production in the
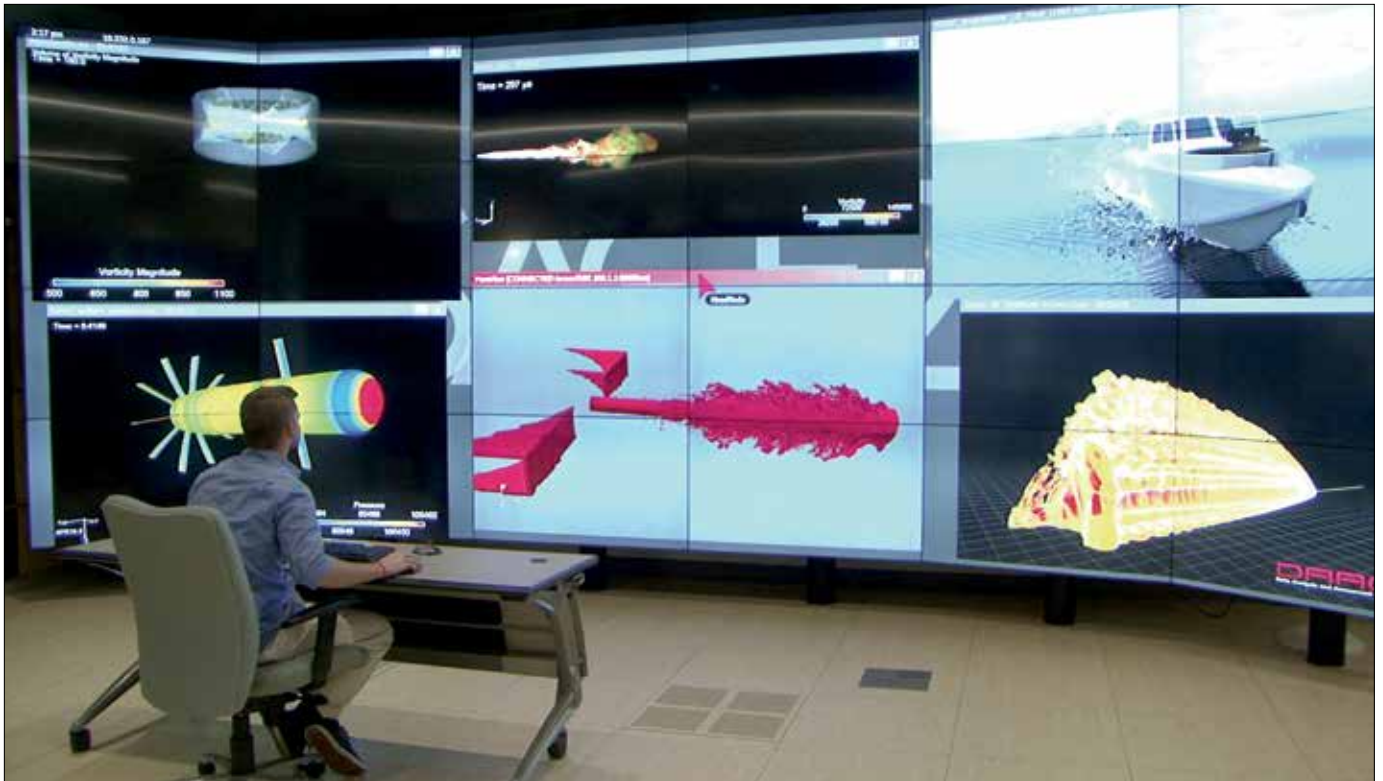
U.S. Army Research Laboratory's DOD Supercomputing Resource Center uses high-performance computing to increase mission effectiveness and advance modernization priorities, November 2017 (U.S. Army)

Daniels Power Pile project at Oak Ridge, Tennessee, in 1946, Rickover envisioned the safe and effective use of nuclear power for propulsion in submarines. Interestingly, the Navy had considered and committed some funds to the study of using nuclear power for propulsion in submarines as far back as 1939. According to Thomas Allen and Norman Polmar, in March of 1939 Rear Admiral Harold Bowen, Chief of the Bureau of Steam Engineering, authorized $1,500 to fund research on nuclear fission (a fission chamber) "that would generate steam to operate a turbine for a submarine propulsion plant."[15] The war temporarily stalled efforts on this transformation initiative in favor of the development of the atom bomb, but after the war in 1946, the Navy sent Rickover and other capable officers to study nuclear reactors. The use of nuclear power for submarine propulsion was an easily understood vision, even to laymen unfamiliar with naval engineering and nuclear physics, and this simplicity aided Rickover in convincing others to support the transformation. Moreover, Rickover's grasp of the subject matter and

aggressive consultation and use of experts helped him convincingly articulate the strategic viability of this vision within the context of the Cold War and the feasibility of its attainment to powerful stakeholders and capable supporters within the Navy, Congress, and White House.

4. Enlist a Volunteer Army. Kotter asserts that employees and members of an organization have to believe that "useful change is possible" to invest—up to the point of making personal sacrifices—in a transformation effort. Such belief in a transformation initiative cannot happen without clear, continuous, and credible communication aimed at winning hearts and minds in the organization.[16] In other words, once they have developed a clear future vision for the organization in line with the proposed transformation, change leaders have to employ every practical means and available opportunity to communicate both the vision and specific aspects of the change across the organization. Change agents in the guiding coalition have to clearly and persistently spread the word on how the change will better the organization

relative to the present state in order to get widespread support throughout the ranks of the organization.

Rickover's communication of the vision for nuclear propulsion in the Navy was effective in terms of the powerful stakeholders and capable change agents. He was able to convince these stakeholders and agents that useful change in the form of nuclear propulsion could be attained, and was preferable, to the status quo (diesel combustion engines in submarines and ships). Arguably, it was the powerful conviction for change that Rickover invoked in influential stakeholders that got them to support the nuclear transformation he was pioneering. He successfully communicated the feasibility and necessity of nuclear propulsion to his immediate superior at the Navy's Bureau of Ships, Admiral Earle W. Mills, and, ultimately, the Navy's leaders, Admiral Chester Nimitz, Chief of Naval Operations, and the Honorable John L. Sullivan, Secretary of the Navy, to get their buy-in and commitment. Theodore Rockwell writes that Rickover crafted letters articulating the military necessity of

nuclear-powered submarines that Nimitz and the Navy Secretary signed and forwarded to the Secretary of Defense and Congress. These letters espoused the goal of completing a nuclear submarine prototype by the mid-1950s and designated the Bureau of Ships as the Navy's proponent for building the new platform.[17]

Legitimized by the Navy leadership's validation of the requirement for nuclear-propelled submarines, Rickover prevailed on the AEC, through Admiral Mills, to commit to partnering with the Navy on nuclear reactors for submarine propulsion. Impressively, Rickover's effective communication of the vision for naval nuclear propulsion and demonstrated grasp of the subject matter convinced Admiral Mills and Senator McMahon to appoint him as head of the Nuclear Power Branch within the Navy's Bureau of Ships and Director of Naval Nuclear Energy within the AEC, respectively.

5. Enable Action by Removing Barriers. Successfully implementing a new or emerging change in an organization requires removal of organizational hindrances coupled with the institution of incentives to promote the change. Sometimes the residual organizational structure and existing policies become an obstacle to the successful implementation of a transformation initiative. According to Kotter, simply communicating the vision and details of the new change is not enough, "renewal also requires the removal of obstacles." Kotter writes that in most cases, even though employees and members of the organization may have bought in to the change, real hindrances or "blockers" may prevent them from acting to implement the change within their sphere of the organization.[18]

A key organizational hindrance that could have scuttled Rickover's transformation efforts at the start was the decentralization of authority for nuclear reactor development and submarine (platform) construction. Nuclear reactor development for the propulsion of submarines and ships was the responsibility of a nuclear reactor suborganization within the AEC, while the Navy's Bureau of Ships managed nuclear submarine development. Rickover understood that

centralizing program managerial authority over nuclear reactor development in the AEC, and nuclear submarine development in the Bureau of Ships, would empower him with the level of command (ability to describe and direct, as well as incentivize and discipline) necessary for successful transformation. To this end, Admiral Rickover aggressively sought and was successful in consolidating control over the organizational structures that were central to successfully pioneering and implementing nuclear propulsion in the Navy. According to Oliver, "Congress established Rickover as the director of naval nuclear energy in the Atomic Energy Commission."[19] Rockwell writes that at the Bureau of Ships, Admiral Mills "chose Rickover and made him head of a new Nuclear Power Branch (designated Code 390) within the bureau's Research Division."[20] This consolidation of authority gave Rickover the mandate and power to effectively pioneer nuclear power transformation in the Navy. Francis Duncan writes that under Rickover (no doubt equipped with the needed authorities) "Naval Reactors did not coordinate, administer, or manage: it decided and directed."[21] It is conceivable that if Rickover had not been so empowered, the factions resistant to the change within the AEC and Bureau of Ships would have wielded and exercised the power to delay and possibly thwart the transformation.

6. Generate Short-Term Wins. Setting and attaining some short-term goals is vital to building and sustaining the forward momentum of a change or transformation initiative. Kotter concurs, and writes that "real transformation takes time, and a renewal effort risks losing momentum if there are no short-term goals to meet and celebrate."[22] Supporters and advocates of a change or transformation initiative can become disillusioned if it is not demonstrating improvement relative to the current state of affairs in 1 to 2 years. According to Kotter, "without short-term wins, too many people give up or actively join the ranks of those people who have been resisting change."[23]

According to Norman Polmar and Thomas B. Allen, the keel of the USS

Nautilus was laid by Harry Truman on June 14, 1952, and the submarine was launched in January 1954.[24] Thanks to the significant technological maturation work on nuclear propulsion reactors going as far back as 1939, this relatively short time to successfully build the first nuclear-powered submarine helped Rickover garner support within the Navy, U.S. Government, and Nation for nuclear propulsion in the early stages of transformation. Moreover, the second nuclear submarine, the USS *Seawolf*, was launched just a year later in July 1955. Duncan describes the impact of successive short-term wins to the nuclear propulsion transformation effort. He writes that "as one nuclear ship after another—beginning with the *Nautilus*—went to sea, Rickover won a reputation with Congress of a man who got things done, and the naval nuclear propulsion program was recognized as one of the most efficient enterprises in government."[25]

Additionally, *Nautilus*'s record-setting voyage under the Arctic and the resulting shift in the strategic nuclear balance of the Cold War constituted a major short-term win for Rickover's transformation efforts—one that earned him the resources and mandate to continue this change. According to Oliver, Rickover used *Nautilus*'s Arctic crossing to support his transformation efforts: "He would tout the event to cement congressional support for nuclear submarines."[26]

7. Sustain Acceleration. This step cautions change leaders and agents against overconfidence in the irreversibility of the nascent transformation initiative they are pioneering. Sometimes change leaders tend to believe, mostly based on short-term successes, that the transformation they have realized cannot be reversed by those opposed to it. Kotter advises against this, and writes that "while celebrating a win is fine, declaring the war won can be catastrophic." Instead, Kotter advises change leaders to use the capital of goodwill and support won by short-term victories to solve big challenges to lasting change, and argues that successful change leaders use the credibility won by initial transformation successes "to go after systems and structures that are not

Soldiers assigned to 1st Battalion, 63rd Armor Regiment, 2nd Armored Brigade Combat Team, 1st Infantry Division, conduct training with M1A2 Abrams tank during Combined Resolve X Live Fire Exercise at Grafenwoehr, Germany, April 19, 2018 (U.S. Army/Miguel Pena)

consistent with the transformation vision and have not been confronted before."[27]

As a change leader, Rickover actively consolidated the early wins and improvements of the transformation he was implementing. Through efforts that spanned engineering and technical innovation, education, and talent management, he sustained the momentum of transformation to produce more change. Ultimately this momentum would result in the institutionalization of this transformation.

In terms of engineering and technical innovation, Rickover inspired confidence and support with initial change improvements that set favorable conditions for sustained long-term advancements. For example, he increased the radiation shielding of the nuclear reactor on submarines to significantly lower the

radiation exposure (and consequent radiation sickness) of the crew. This greatly benefited crews and the overall development of the submarine force. For example, U.S. submarine crews were able to return from patrols, refit, and resume new patrols much faster than their Soviet counterparts, which means they grew experience faster. On the other hand, Oliver writes that the Soviet submarine crews of this era experienced considerable radiation exposure and sickness from less safe designs, to the extent that crews had to be put on "enforced leave away from nuclear plants . . . to permit the sailors' bone marrow to regenerate."[28]

Additionally, having successfully demonstrated the relatively safe use of nuclear propulsion in submarines, Rickover worked diligently to incorporate the technology into the surface fleet. To this end,

Rickover and his team were successful in pioneering the first nuclear surface ship—the USS *Longbeach*. Undoubtedly, this succeeding accomplishment helped underscore the long-term utility of nuclear propulsion transformation over the status quo. Today's nuclear-powered aircraft carriers are in part a product of Rickover's continued innovation with nuclear power, which is consistent with the continuous change improvement advocated by the Kotter change model. This anecdotal evidence proves that the Kotter model is not only a good approach for one time change in a private-sector organization, but also can actually be utilized for enduring military modernization.

8. Institute Change. A change or transformation's irreversibility is greatly dependent on the activities in this step. The step advocates the acculturation of

an organization to a transformation or change initiative. Kotter posits that "until new behaviors are rooted in social norms and shared values, they are subject to degradation as soon as the pressure for change is removed."[29] Cultural change is critical because an organization is less likely to reverse a transformation or change if it is now part and parcel of the organization's culture (the way it views itself and operates). According to Kotter, "change sticks when it becomes 'the way we do things around here,' when it seeps into the bloodstream of the corporate body."[30]

Admiral Rickover changed the Navy's culture to ensure that the transformation he had pioneered would endure after him. To this end, Rickover was fortunate to have been left in his position for four decades to implement this institutional transformation—something that is unlikely to happen in today's military. Rickover was relentless in creating a new subculture within the Navy that was supportive of perpetuating this change. He selectively recruited talent and instituted a career management model that helped attract, educate, challenge, and advance the high-performing talent he had recruited to perpetuate and institutionalize the transformation. Furthermore, he promoted and strictly enforced a culture of continuous process improvement and professional excellence.

Rickover was personally engaged in the recruitment, education, and management of the officer (and to some extent noncommissioned officer) talent in the nuclear submarine community—a key factor in consolidating and generating continuous change improvements. As mentioned earlier, Rickover had a rigorous screening process for new talent. According to Admiral Zumwalt's narrative of his interview with Rickover, it is clear that Rickover personally interviewed and hired new high-performers to continue accelerating the change.[31] He also structured the career development model (punctuated by intensive periods of study, and experiential learning and testing, followed by operational service) for nuclear submarine personnel. From Duncan's account, it is evident that Rickover's career model ensured the high standard

of education, self-study, and performance necessary to grow talent that would maintain the momentum of the transformation.[32] This model also ensured a viable career progression track that would eventually make it possible for members of the nuclear submarine community to viably compete for flag rank, and even become Chief of Naval Operations (the current Chief of Naval Operations, Admiral John M. Richardson, last held Rickover's office as Director of Naval Reactors).

Within the nuclear submarine community, Admiral Rickover established and enforced a subculture of exacting engineering standards for both the Navy and private industry for dealing with the complex engineering inherent in nuclear reactors. For context, Oliver compares Rickover's exacting process standardization for the development and operation of naval nuclear reactors to popular management applications for quality and efficiency: Bill Smith's Six Sigma methodology for performance and quality and W. Edwards Deming *Kaizen* principles.[33] Rickover's subculture of high standards minimized failures, which sustained the momentum of the transformation and helped the change take root within the submarine community and the Navy.

In addition to enforcing high standards for processes, Rickover's successes in naval nuclear reactors show he recognized the integral importance of Continuous Process Improvement to the long-term, successful institutionalization of nuclear propulsion in the Navy. Subsequently he built a team and culture that practiced Continuous Process Improvement, which helped produce more change improvements. Oliver concurs, and writes that Rickover "gathered a team of people that would inculcate a system of continuous improvement into submarines. With the culture Rickover established, American submarines become so technically advanced that they were essentially invulnerable."[34]

Contemporary Transformation Efforts in the Armed Forces

The demonstrated consistency of the Navy nuclear propulsion transformation

effort with the Kotter methodology for change highlights not only the adaptive applicability of the methodology to military transformation but also offers important insights for contemporary transformation efforts in the U.S. military. These insights should be caveated with the understanding that Admiral Rickover served as Head of Naval Reactors for over 30 years, which helped the nuclear propulsion transformation effort. However, Rickover's extensive tenure as Head of Naval Reactors should not be assumed as the sole reason for success. This was an excellently executed military transformation effort. Moreover, its consistency with the Kotter model highlights the potential utility of adapting the model to help manage contemporary Service transformation efforts. It is likely impossible for contemporary military change agents to remain in a leadership position and drive a change as long as Rickover did. However, the advantage of continuity that nuclear propulsion transformation enjoyed under Rickover can be emulated by enlisting a younger generation of change agents when building the guiding coalition that Kotter recommends. In other words, Rickover's extended tenure does not disqualify the Navy nuclear propulsion transformation effort as an excellent example of military organizational transformation consistent with the Kotter change methodology.

Rapidly modernizing potential peer adversaries create a sense of urgency for U.S. military modernization, much akin to that created by the Soviet Union during the Cold War. Emulating Rickover, change agents within the military should leverage the rapidly growing capabilities of potential peer adversaries and general global instability to cultivate a sense of urgency for transformation efforts. This will require military change leaders to clearly develop and articulate how contemporary transformation efforts will serve as economical alternatives for shifting the strategic competition in America's favor.

Some of the challenges Rickover faced many decades ago are still relevant to change or transformation efforts now. For example, Service and Defense

Department leaders, Congress, and the President are still powerful allies to gain and leverage as part of the guiding coalition for a major and lasting change in the Armed Services. These allies can help change or institute policies and legislation supportive of a change, as well as resource much-needed funding to finance the change. A compelling sense of urgency, coupled with a comprehensible, viable vision that is widely communicated by known and respected change leaders (backed by organizationally recognized subject-matter experts) will win such powerful allies.

Additionally, change leaders should seek empowerment to directly influence activities (remove critical hindrances to transformation) in all the key organizations required to implement lasting change. Rickover sought empowerment in both the AEC and Navy Bureau of Ships to ensure that he could direct nuclear reactor development and submarine construction and remove hindrances to successful transformation.

The importance of securing short-term wins cannot be overstated for today's transformation efforts. The cost and relatively short development schedule for the prototype USS *Nautilus*, as well as its successful performance demonstration in crossing the Arctic, added significant momentum and political capital to the nuclear propulsion transformation. Of note is that the *Nautilus* was aligned to long-term transformation objectives, and viable enough for Navy and national leaders to view and tout as progress from the status quo. Consistent with this successful precedence, transformation efforts should responsibly seek and exploit opportunities for strategic short-term wins that are aligned to long-term goals. Notably, Service partnerships with industry are invaluable in realizing strategically viable short-term wins, so Service change leaders should endeavor to cultivate them. The Navy's close relationship with industry was vital in realizing successive short-term wins for the nuclear propulsion transformation effort.

Finally, military transformation efforts will ensure a higher probability of lasting success by identifying and changing,

through policy and legislative changes, existing value systems and practices that are incompatible with the nascent change. Emulating Rickover's example in aggressively building the exacting organizational standards, process improvement mechanisms, selective talent recruitment, and career management models supportive of the Navy's nuclear transformation will help contemporary change leaders consolidate improvement, produce additional change, and institutionalize the new approaches that have been created.

The complexity of the contemporary global security environment and the anticipated challenges of the future increasingly stress the need for sustained modernization of the U.S. military. This article explores a way to help the Armed Forces successfully transform. By highlighting the consistency of the highly successful Navy nuclear propulsion transformation with the John Kotter methodology, the study not only shows that Kotter's change methodology can be successfully applied to military transformation with some adaptation, but also highlights useful historical transformation insights in the process. So, in light of the contemporary and future global security environment, and their modernization implications for U.S. forces, Kotter's Eight-Step Process for Leading Change can—with adaptive application—help the Armed Forces successfully transform to attain their long-term modernization objectives. **JFQ**

Notes

[1] John P. Kotter, *Leading Change* (Cambridge, MA: Harvard Business Review Press, 1996), 20.

[2] Thomas B. Allen and Norman Polmar, *Rickover: Father of the Nuclear Navy* (Washington, DC: Potomac Books, Inc., 2007), ix.

[3] This definition of *modernization* is consistent with the following characterization by Pippa Norris: "'Modernization' refers to a multitude of systemic-level trends—social, economic, demographic, and technological—transforming the structure of societies from rural to industrialized, and from industrialized to post-industrial." See Pippa W. Norris, *Democratic Phoenix: Reinventing Political Activism* (Cambridge, MA: Cambridge University Press, 2003), 2.

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[6] Dave Oliver, *Against the Tide: Rickover's Leadership Principles and the Rise of the Nuclear Navy* (Annapolis, MD: Naval Institute Press, 2014), 28.

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[9] John P. Kotter, *Accelerate: Building Strategic Agility for a Faster-Moving World* (Cambridge, MA: Harvard Business Review Press, 2014), 29.

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[11] Theodore Rockwell, *The Rickover Effect: How One Man Made a Difference* (Annapolis, MD: Naval Institute Press, 1992), 66.

[12] Elmo R. Zumwalt, Jr., *On Watch: A Memoir* (New York: Quadrangle, 1976), 87–96.

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[14] Kotter, "Leading Change," 63.

[15] Allen and Polmar, *Rickover*, 20–21.

[16] Ibid.

[17] Rockwell, *The Rickover Effect*, 56–57.

[18] Kotter, "Leading Change," 64.

[19] Oliver, *Against the Tide*, 19.

[20] Rockwell, *The Rickover Effect*, 65.

[21] Francis Duncan, *Rickover and the Nuclear Navy: The Discipline of Technology* (Annapolis, MD: Naval Institute Press, 1990), 6.

[22] Ibid., 65.

[23] Ibid.

[24] Norman Polmar and Thomas B. Allen, *Rickover: Controversy and Genius* (New York: Simon & Schuster, 1982), 150–155.

[25] Duncan, *Rickover and the Nuclear Navy*, 14.

[26] Oliver, *Against the Tide*, 30.

[27] Kotter, "Leading Change," 66.

[28] Oliver, *Against the Tide*, 53.

[29] Ibid., 67.

[30] Ibid.

[31] Zumwalt, *On Watch*, 89–94.

[32] Duncan, *Rickover and the Nuclear Navy*, 247–249.

[33] Oliver, *Against the Tide*, 73.

[34] Ibid., 136.

Ex–USS *Alabama* hit by white phosphorus bomb dropped by NBS-1 in bombing tests, as Army Martin twin-engine bomber flies overhead, Chesapeake Bay, September 23, 1921 (U.S. Naval History and Heritage Command)

Air Force Strategic Bombing and Its Counterpoints from World War I to Vietnam

By Michael M. Trimble

F rom the early days of airpower to the Cold War, a variety of geopolitical, domestic, and institu-

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tional factors led influential American Airmen to focus narrowly on the idea of strategic bombing. This narrow focus occurred most obviously during peacetime, as strategic bombing in one form or another represented the most cost-effective means of deterring threats to the homeland, and the most decisive

means to defeat enemy states if necessary. Yet whenever an actual shooting war broke out, the United States called upon Airmen to do far more than just strategic bombing, while the results of strategic bombing were often ambiguous at best. As a result, wartime Airmen adapted equipment designed

for strategic bombing to a variety of other roles, or persevered with old equipment while the Service developed and fielded new technology. These adaptations in wartime yielded varying degrees of success, depending on the enemy's capabilities, the war's particular character, and the abilities and will of the Airmen themselves.

The inadequacy of Air Force ideas and equipment at the outset of several successive wars speaks to a need for education and innovation, rather than indoctrination and dogma. The Air Force in its first 50 years would have benefited from developing and refining the great variety of capabilities that airpower offered. By focusing instead on strategic bombing as the primary purpose of airpower, Airmen and airpower theorists unnecessarily channelized American airpower thought. The Air Force transitioned from war to war following a similar pattern. Despite the broad contributions of airpower in World War I, World War II, and the smaller hot wars within the Cold War, from the 1920s until at least the 1970s the Air Force continued to cling to an early vision of airpower that promised decisive victory through strategic bombing.

World War I
During World War I, airpower was new. Despite tribulations and losses, Airmen adapted and persevered to achieve many operational successes over the course of the war. While aerial battles and bombardments captured worldwide attention, airpower did not exert a determinative influence on the course of the war. Nevertheless, the huge leaps forward in airpower driven by the demands of the war cleared paths for most modern functions of military aviation, including reconnaissance, transport, counter-air, interdiction, and of course, strategic bombing.[1]

World War I also gave many of the Airmen who would drive interwar airpower development their first formative experiences with combat aviation. Most famously in the United States, Billy Mitchell cemented his reputation as an early airpower leader, and his own belief that airpower would decide future wars,

while commanding more than 1,400 Allied aircraft at St. Mihiel.[2] Called a "crusader for airpower" by one biographer, Brigadier General Mitchell became an unusually political Airman after the war. He raised the public profile and expectations of military airpower in the United States, despite deep institutional resistance in the U.S. Government.[3] His public and insubordinate crusade made an impact on popular opinion and the government, but it eventually cost him his career.[4] Within the Army, Mitchell also argued influentially for the division of the Air Service into *strategic* and *tactical* forces—and that the strategic force would affect the war's outcome more than any other combat arms branch.[5] As America's first true airpower theorist, Mitchell and his ideas influenced generations of airmen, especially those of the interwar period and World War II. Two of his closest aides, Kenneth Walker and Robert Olds, would go on to integrate his thoughts on bombing and his forceful approach into their work at the Air Corps Tactical School.[6]

The Interwar Period
During the interwar period, the U.S. Army Air Corps struggled to attain the resources and independence necessary to make its concept of decisive airpower a reality. The basic melody of American strategic bombing theory had emerged as World War I ended. In late 1917, U.S. Army Air Service Major Edgar Gorrell collaborated with (some would say plagiarized) Royal Air Force (RAF) Major Lord Tiverton on a plan for an air campaign in 1918, designed to break the bloody stalemate of the preceding years.[7] Gorrell advocated bombing the "commercial centers and lines of communication in such quantities as will wreck the points aimed at and cut off the necessary supplies without which the armies in the field cannot exist."[8] Gorrell's plan, and the postwar reports he compiled and edited, met a warm reception among Billy Mitchell's protégés. Airmen of the interwar period were easily convinced that Americans might use their superior technology and air-mindedness to strategically bomb a

nation's industry, war materiel stockpiles, and transportation systems, and thereby deliver decisive victory without the slaughter of World War I. The Air Corps found the idea deeply compelling as a strategy, and very useful as a narrative during an interwar period characterized by fiscal constraints and a broad public fascination with aviation.

Later in the interwar period, the Air Corps Tactical School (ACTS) built Gorrell's framework into its doctrine. Faculty member Laurence Kuter called the Gorrell Plan the "earliest" and "clearest" conception of American airpower.[9] ACTS taught in the 1930s that precise bombing of key nodes in an enemy's "industrial web" would destroy the enemy's warmaking ability *and* his will to fight. Faculty members Kenneth Walker, Robert Olds, and a few colleagues became known as the "Bomber Mafia" because they viewed the fighter, attack, and reconnaissance missions as secondary. Walker taught that "a well-organized, well-planned, and well-flown air force attack will constitute an offensive that cannot be stopped."[10]

The Bomber Mafia succeeded in steering the ACTS curriculum increasingly toward strategic bombing, at the expense of other airpower functions that had proven valuable in World War I. Among those marginalized were the innovative George Kenney, an observation and attack aviator in World War I, and Claire Chennault, leader of the ACTS pursuit aviation course in the early 1930s. As the intellectual center of the Air Corps, ACTS, with its narrow focus on strategic bombing (to the exclusion of other mission sets), clearly channelized the thoughts of generations of Airmen. Most of the officers who would guide and command the Army Air Forces during World War II attended ACTS in the 1930s, including Ira Eaker, Carl "Tooey" Spaatz, and the ubiquitous Curtis LeMay.[11]

World War II
During World War II, the U.S. Army Air Forces, built primarily for strategic bombing, struggled to adapt in the face of determined, powerful enemies and
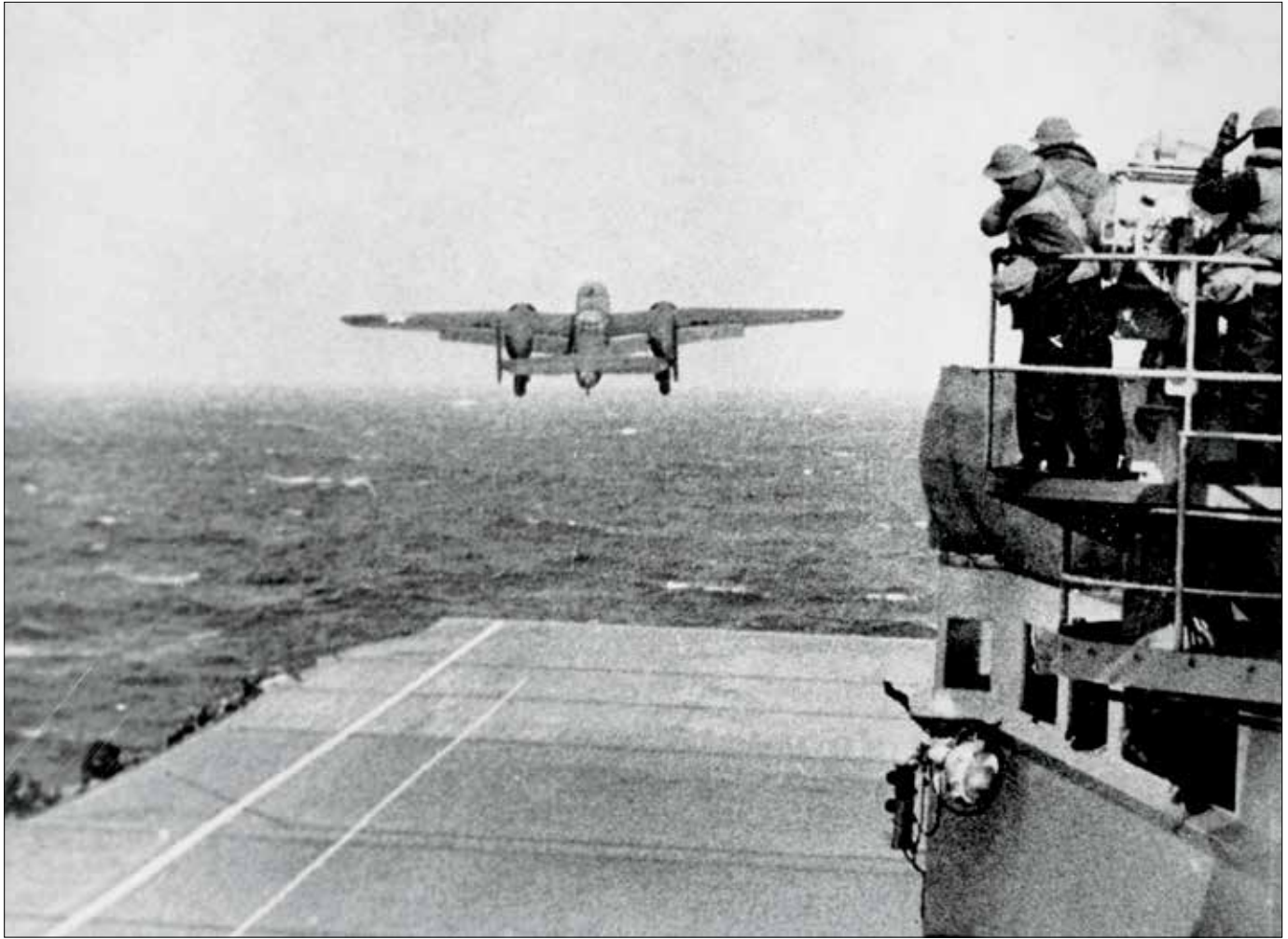
U.S. Army Air Forces North American B-25B Mitchell bomber takes off from USS *Hornet* as part of first wave of Doolittle Raid, April 18, 1942 (U.S. Navy/ U.S. National Archives and Records Administration)

unforeseen challenges. Despite tribulations and staggering losses, Airmen adapted and persevered to achieve many operational successes over the course of the war.

British strategic bombing advocates learned the hard lessons before the Americans. In December of 1939, the RAF sent its vaunted strategic bomber force to attack the German port of Wilhelmshaven. Twelve of 22 bombers on the mission were shot down.[12] The RAF fared little better as the war went on. Historian Tami Davis Biddle writes, "In the early months of 1943, only 17 percent of Bomber Command crews could be expected to complete the required 30-mission tour of duty."[13] Yet the U.S. Army Air Forces entered the Combined Bomber Offensive (CBO) with hubris, dismissing the lessons learned by the

British, confident that their superior technology and doctrine would prevail.

Major General Ira Eaker, Eighth Air Force Commander, had expressed confidence that "well-flown formations" of B-17s could execute their bombing missions into Germany with a loss rate of 5 percent or less.[14] Like many of his peers, Eaker underestimated the toll that German interceptors and antiaircraft fire would take. Losses experienced by unescorted U.S. Army Air Forces bomber formations wildly exceeded Eaker's estimate as the offensive raged into autumn of 1943. August strikes on fighter and ball-bearing plants caused considerable damage to German war production, but 60 B-17s were lost in the process.[15] A single bombardment group led by Colonel Curtis Lemay lost 9 of its 21 aircraft in the Schweinfurt-Regensburg mission

on August 17, 1943. This unsustainable attrition culminated in the October raids on Schweinfurt, in which 198 of 291 bombers were shot down or damaged.[16] Braced by this bloody crescendo, General Henry H. "Hap" Arnold, Commanding General of the U.S. Army Air Forces, finally recognized the dire need for long-range fighter escorts in the fall of 1943.[17]

Beyond the Combined Bomber Offensive, General Arnold empowered battlefield commanders to adapt airpower to the needs of Allied forces and the challenges of their respective theaters, with outstanding results. Arnold chose Lieutenant Colonel James Doolittle to organize and lead 16 modified B-25s on an audacious carrier-launched strike against the Japanese mainland in retaliation for Pearl Harbor in April 1942. In North Africa, from late 1942 to 1943,

the 12th Air Force under Doolittle and later General Carl Spaatz used C-47 cargo aircraft to conquer the vastness of the Sahara. Troop carriers resupplied far-flung units, evacuated hundreds of wounded, and executed the first-ever combat drop of a weapon used with great effect throughout the conflict: the American paratrooper.[18] In the 1943 Battle of the Atlantic, B-24 bombers under Eaker's 8th Air Force aided British forces in defeating the German U-boat fleet, providing assured delivery of war materiel to Britain for the duration of the war.[19] Eaker also built up special operations squadrons in the 8th and 15th (Mediterranean) Air Forces, which proved immensely useful to the U.S. Office of Strategic Services in supplying the French resistance and infiltrating agents into occupied territory.[20] In the China-Burma-India theater, Lieutenant General William Tunner led a trans-Himalayan airlift effort known as "the Hump," supplying several different forces fighting the Japanese: Chiang Kai-shek's nationalist Chinese forces, the multinational Flying Tiger fighters and bombers under Claire Chennault, and now–Major General Curtis LeMay's B-29s.[21]

Meanwhile, in the Southwest Pacific, strategic bombing theory had lost one of its staunchest advocates. In January 1943, Brigadier General Kenneth Walker of the ACTS Bomber Mafia was tragically killed while flying an ineffective high-altitude precision daylight bombing mission in the Bismarck Sea.[22] General George Kenney's Southwest Pacific Air Forces soon abandoned high-altitude bombing. Instead, Kenney prioritized an air superiority campaign against Japanese fighters and pioneered low-level bombing tactics against enemy shipping. This strategy successfully protected American supply lines and isolated Japanese ground forces.[23] Meanwhile, Kenney's troop carrier squadrons achieved new levels of effective joint operations and force packaging, working with fighter and attack escorts, naval forces, Australian forces, and the troops they carried to seize airfields in the Southwest Pacific and roll back the Japanese strategic perimeter.[24] Interestingly, Kenney remarked in 1944

that aircraft and air units should *not* be designated "strategic" or "tactical" because the same aircraft might bomb targets near the frontlines on one day and targets 5,000 miles away the next.[25]

Kenney's remarks could certainly describe "Big Week" and Operation *Cobra* back in the European theater, wherein the concentration of air assets, tactical *and* strategic, provided operational breakthroughs. During Big Week in February 1944, the tactical aircraft of 9th Air Force contributed to a successful strategic bombing campaign against the German aircraft industry, led by the 8th Air Force under Doolittle. It had taken time for P-51 and P-47 escorts with drop tanks to arrive in theater once Eaker and Arnold recognized the need. But by summer 1944, after months of fully escorted bomber missions and independent fighter sweeps, the air war had turned fully in the Allies' favor. The Allies executed the D-Day invasion with the advantage of air superiority. Bomber formations faced a Luftwaffe short on aircraft—and desperately short on experienced pilots—in the skies over Germany. The CBO proved vital to the overall Allied effort in Europe, but not in the way its progenitors expected. Recent historians have concluded that the "major contribution of strategic bombing by June 1944 was its role in bringing about the weakening of the Luftwaffe's fighter arm . . . through attrition."[26]

Operation *Cobra* in July 1944 also blurred the distinction between strategic and tactical airpower, while revealing airpower's inherent flexibility. During *Cobra*, strategic bombers provided vital tactical firepower against German fielded forces and supply trains, supporting the Allied ground troops' breakout from Normandy peninsula following D-Day. The Allies also appropriated a wing of B-24 bombers to resupply the advancing ground troops.[27] Given the stakes of the invasion, General Dwight Eisenhower, as Supreme Allied Commander, had taken operational control of 8th Air Force in April 1944. He maintained control through September in order to ensure that the Army Air Forces concentrated the mass of available airpower to support

the ground scheme of maneuver. The *Cobra* bombardments proved vital to the Army's successful breakout, and the resupply missions enabled the Allied advance.[28] *Cobra* and the many preceding examples, spanning the globe and the entire range of operations, speak to the adaptability of Allied Airmen, and belie the interwar underselling of the Air Force as solely a strategic bombing force.

During World War II, the demands of total war briefly illuminated the full range of airpower's potential. Strategic bombing yielded synergistic effects when combined with true air superiority machines and tactics. Interdiction campaigns in the Pacific and Western Europe demolished enemy lines of communication and kept vital materiel from reaching the enemy's frontlines. Troop carriers, small liaison aircraft, and even civilian airliners found indirect, unexpected ways to take the Allied fight to the enemy.[29] As historian Phillips Payson O'Brien puts it, "airpower in its totality" proved decisive in Europe and the Pacific because it "multiplied the physical space and conceptual possibilities of the area of battle."[30]

The Atomic Bomb

Airpower did not win World War II *quickly* by executing one mission set on its own. Instead, it contributed across the battlespace—even *expanding* the battlespace—by doing a dozen things well. By striking independently behind enemy lines, while other units reinforced the land and sea campaigns, Allied airpower created unsolvable dilemmas for Germany and Japan. Yet the broad view of airpower that emerged *during* World War II would be overshadowed by a strategic bombing mushroom cloud that arose at the war's end. The common misperception that the atomic bomb answered every counterpoint to strategic bombing theory proved unfortunate for the Airmen who would fight the limited air campaigns of the Cold War with equipment built for strategic bombing. "The good of the bomb," writes Professor Michael Sherry, "seemed blindingly apparent, and the evil remote, if fearsome. The bomb, it appeared, had

ended an awful war and in so doing realized a half-century's fantasy about transcending and erasing the horrors of conventional warfare."[31]

It was tempting for Airmen to perpetuate the narrative: The United States Army Air Forces—in particular, two aircraft under Spaatz's Strategic Air Forces—dropped two atomic bombs on Japan in August of 1945, and thereby won the war. After all, the bombs were dropped on August 6 and 9, and the Japanese announced their surrender on August 15. But in truth, the atomic strikes on their own did not constitute a decisive blow, as some strategic bombing advocates would have had it.

To attribute Japanese surrender directly and entirely to two B-29 missions is to ignore everything that set the stage for those missions, most notably the years of costly naval, amphibious, and combined-arms warfare fought by the Army, Marine Corps, Navy, and Army Air Forces, which strangled Japan's economy while seizing vital islands and airbases.[32] Like the European war, the Pacific conflict became a war of attrition between industrial powers—in which Japan was outproduced by the American war industry and immobilized by American forces.[33] A narrow focus on the bomb also ignores the significant geopolitical factor of the Soviet Union's entry into the Pacific war on August 8. Most historians do agree that the atomic strikes hastened the end of the war and obviated the need for invasion.[34] Yet to say that this consensus redeems the promises of strategic bombing is a logical island-hop too far.

Korea
During the Korean War, a U.S. Air Force built primarily for strategic bombing struggled to adapt to a limited, nonnuclear conflict. Despite tribulations and losses, Airmen achieved many operational successes over the course of the war. In 1950, the B-29 bombers of the Far East Air Forces destroyed most of North Korea's industry. Yet the enemy fought on, in part because his airfields and the true "key nodes" or "bottlenecks" of his industrial system were located in

Manchuria and greater China, where the rules of engagement (ROEs) or simple geography kept them invulnerable to U.S. strikes. Airpower supported General Douglas MacArthur's defense of the Pusan Perimeter in August and September 1950, as well as his subsequent drive north to the Yalu River.[35] But in November 1950, the Chinese intervened en masse and pushed United Nations (UN) forces back below the 38th parallel, which had been the border before the war broke out. In the first half of 1951, the conflict settled into a stalemate on the 38th parallel, and air operations constituted the majority of UN offensive action for the duration of the war.[36] However, with most of the industrial targets and military targets in North Korea already destroyed, and little enemy maneuver or resupply to interdict, an Air Force built for strategic bombing found that strategic bombing either had not worked—or had not been allowed to work.

For years after the conflict, Airmen would claim the latter. As Chief of Strategic Air Command, General LeMay, stated, "we never did hit a strategic target" during the Korean War and that the conflict provided a lesson in "how not to use the strategic air weapon."[37] Claims like these reflected a widely held belief among Airmen—that if they had been allowed to prosecute the strategic bombing campaign that their doctrine called for, then the United States could have won the war in short order. Whatever their merits, such claims overshadowed American airpower's Korean War achievements, most significantly gaining air superiority and fighting to maintain it throughout the conflict, improving all-weather and night attack, and executing numerous successful airdrops for troop insertion and resupply.

Shortly after the war, General Otto Weyland argued that distinctions between "tactical" and "strategic" airpower had proved obsolete—a fascinating insight, coming from the chief of Tactical Air Command. Having led the Far East Air Forces during the war, Weyland concluded that the Air Force should focus on developing "new patterns of air

employment" for future wars.[38] It was not to be. Instead, LeMay and Strategic Air Command would dominate Air Force strategy, culture, and acquisitions during the period between Korea and Vietnam, and the Air Force would mistake the Korean War's politically restrained air campaign for an anomaly, rather than the new reality of aerial warfare.[39]

Vietnam
During the Vietnam War, an Air Force built primarily for strategic bombing struggled to adapt to a limited, irregular conflict. Despite tribulations and heavy losses, Airmen achieved many operational successes over the course of the war. In 1965 and 1966, pilots of the F-105 Thunderchief—a fighter-bomber resembling a rocket with stubby wings, built for nuclear weapons delivery—struggled to defend themselves against highly maneuverable North Vietnamese MiGs and Russian-supplied surface-to-air missiles (SAMs). In 1967, the Air Force fielded a two-seat, SAM-hunting "Wild Weasel" configuration, the F-105G, which proved effective in its designated role, suppression of enemy air defenses. Nevertheless, nearly 400 F-105s would be lost over the course of the war, including dozens of Weasels.

Although the Air Force could have been better equipped and trained for Vietnam, many operational and tactical airpower success stories emerged from the war. Colonel Robin Olds's Operation *Bolo*, on January 2, 1967, is perhaps the most well known in today's Air Force. Exploiting the predictability of strike packages in the ongoing Operation *Rolling Thunder*, a force of F-4 Phantom II fighters led by Olds and his 8th Tactical Fighter Wing flew into North Vietnam using the routes, altitudes, airspeeds, radio callsigns, and electronic jamming pods usually used by the more vulnerable F-105s. The ruse worked. Multiple flights of North Vietnamese MiG-21s were drawn into the air and were likely surprised to find the entire "strike package" composed of F-4s, equipped with air-to-air missiles. The North Vietnamese air force lost 7 MiGs that day; the U.S. Air Force gained a much-needed operational victory.

At the same time, the American theater strategy demanded that the Air Force hunt for elusive enemy supply convoys flowing down the Ho Chi Minh trail. Special operations "air commandos" flying World War II–era, prop-driven aircraft at low level proved more effective in this role than their jet-fighter brethren.[40] Airmen adapted this old fleet of aircraft to interdict the Ho Chi Minh trail, and their impressive operational results stand in stark contrast to the high-altitude, high-tech trends that dominated Air Force thinking leading up to Vietnam.

Furthermore, the use of U.S. airpower to blunt North Vietnam's 1968 Tet Offensive and 1972 Easter Offensive proved vital to the support of American forces and the defense of South Vietnam. During the Tet Offensive, the besieged Marines at Khe Sanh depended on close air support from the Air Force, much of it delivered oddly, but effectively, by B-52 strategic bombers—strategic bombers that would not be employed against the enemy's capital city, military headquarters, or industrial port city until 1972.

The responses to the 1972 offensive in particular helped bring the war to a close. Operations *Linebacker I* and *Linebacker II* saw President Richard Nixon direct masses of U.S. airpower—tactical and strategic—against all manner of targets in North Vietnam. Emboldened by a new diplomatic opening with China, and with the 1972 election increasing U.S. domestic pressure to end the conflict, President Nixon demanded a maximum effort bombing campaign against previously restricted targets in Hanoi and Haiphong. Nixon repeatedly and explicitly ordered more B-52 strikes in Vietnam during 1972, culminating in the 11-day Operation *Linebacker II* in December of that year. Postwar accounts from the North Vietnamese side vindicate Nixon's belief that B-52s in particular induced great fear among the population, and more importantly, that the massive casualties resulting from the B-52 strikes coerced North Vietnamese leadership during the Paris peace negotiations.[41]

For years after the conflict, Airmen would claim that if they had only been
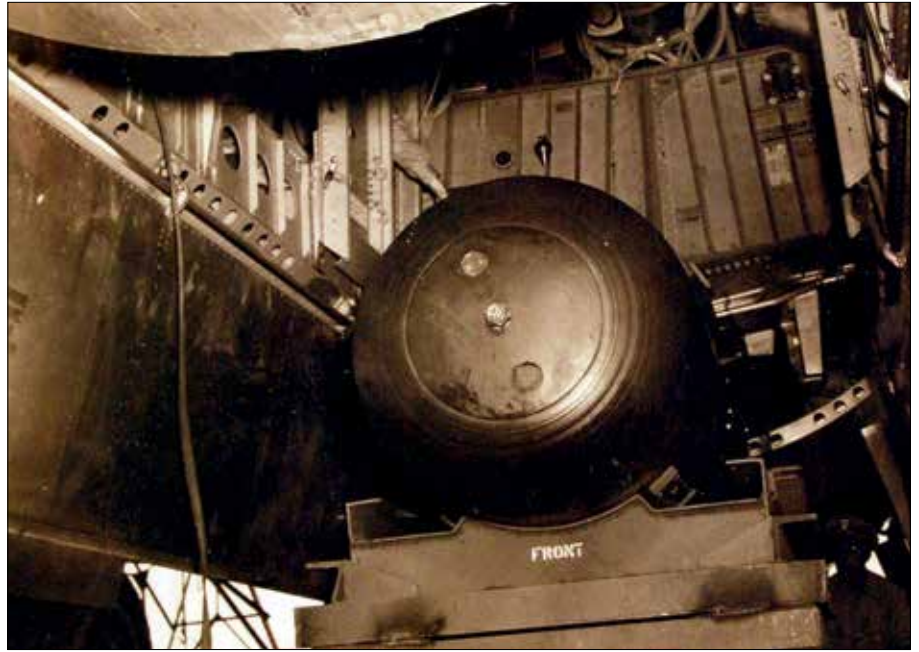
Atomic bomb "Little Boy" hoisted into bomb bay of B-29 Superfortress, Enola Gay, Tinian Island, August 1945 (U.S. Navy National Museum)

freed from the encumbrances of the ROEs and allowed to prosecute the maximal bombing campaign that they had initially proposed against North Vietnam in 1964, as they eventually did in 1972, then the United States would have won the war in short order.[42] However, that claim has been debated many times since, and has even been refuted at times by Airmen themselves.[43] General Chuck Horner, a Vietnam veteran, would later dispute the very idea of "strategic" bombing, instead emphasizing airpower's ability to provide strategic *and* tactical effects, often simultaneously, with a variety of platforms.[44] In any case, the claim that strategic bombing in the mid-1960s could have won the war fails to acknowledge that avoiding escalation to general war—a negative objective—was foremost in U.S. political leaders' minds at the time.[45] The claim also overshadows the broad contributions Airmen did make over the course of the conflict, thanks to airpower's inherent versatility and the Airmen's ability to adapt.

Coda
Peering through a narrow aperture at these episodes in American airpower history, one might wonder how a nation with the resources and robust

aviation enterprise of the United States *repeatedly* fielded the wrong aircraft or employed the wrong doctrine . . . until one realizes that in each case, the aircraft or doctrine went wrong *in the same way*, pursuing the same singular, powerful idea. During each interwar period until the post-Vietnam period, the U.S. Government cut defense spending and bet the remaining budget on the *possibility* of deterring enemies or defeating them far from the United States, without sacrificing American lives, through strategic bombing.

Of course, no single mission or capability, no matter how well-resourced and organized, is sufficient to defend the country and its interests. There are many reasons that the Nation's defense cannot be guaranteed by a single capability or even a single military Service. The clearest reasons are the fog and friction of war, its political nature, and its paradoxical logic, in which every move is opposed by a thinking, willful enemy.[46] Therefore, just as strategic bombing in Europe proved far more difficult and less decisive than its pre–World War II advocates had hoped, America's post–World War II strategic nuclear forces neither guaranteed peace, nor did they provide acceptable options in limited war. But fortunately for the

B-52 bomber takes off from Andersen Air Force Base in support of bombing effort of North Vietnam from December 18–29, 1972, known as Operation *Linebacker II* (U.S. Air Force)

Airmen of those wars, airpower's enduring utility lay in its ubiquity, flexibility, and speed; airpower could go many places and do many useful things—fast.[47] In each conflict where strategic bombing's effects may have disappointed or remained ambiguous, Airmen managed to adapt airpower thought and technology to the challenges at hand.

Postlude

Professor Sherry writes that "continuity in the history of aerial warfare seems as striking as change."[48] Certainly, the Air Force's 50-year-long strategic bombing fugue supports Sherry's point. But in the post–Vietnam period, the Air Force began to produce a new arrangement.

A number of factors influenced the Air Force transition to a strategy, and an identity, that was more whole. The Service had been reluctant to send its B-52 bombers into North Vietnam for much of the conflict, for fear of compromising its cutting-edge electronic warfare technology if one was shot down. In the meantime, the majority of strikes up north were executed by fighter crews. As a result, Tactical Air Command emerged from Vietnam with the lion's share of combat experience in the Air Force. These fighter pilots would go on to emphasize and institutionalize several significant changes: more aggressive, realistic flying training; greater emphasis on air superiority, to enable strike and other airpower functions; and a more holistic strategy for employing the flexible, adaptable air weapon against the entire enemy system.[49] One scholar suggests that the strategists of this generation, whose careers spanned from combat experience in Vietnam to planning and leading Operation *Desert Storm*, turned strategic bombing from a singular blunt instrument into a system-wide capability in the Air Force.[50] This generation of Airmen, including Moody Suter, Chuck Horner, John Warden, John Jumper, and many others, built on the systems thinking that lay at the heart of strategic bombing doctrine, while organizing, training, and equipping the post–Vietnam Air Force to execute a great variety of missions. Essentially, they managed to take the keystone of strategic bombing theory—the idea of the enemy as a system—and build and train a force that could attack the entire system, rather than just certain key nodes. Perhaps during the post-Vietnam

period, the Air Force finally developed "completely new patterns of air employment," as General Weyland had urged in 1953.

If the first 50 years of American airpower teach any coherent lessons, one must be that every conflict will involve new challenges and surprises for airpower. Therefore, it is the task of the Service's leaders and strategists to prepare it for the most lethal threats, while building in flexibility and anticipating an array of more likely threats as well. In this way, the Air Force can avoid repeating its 20th-century fugue, wherein various modulations and mutations of the strategic bombing subject dominated each progression of airpower. By building in flexibility through superior, adaptable platforms and continuous innovation, and by training for core missions as well as unpredictable scenarios, Airmen can hone core skill sets while cultivating the critical thinking and adaptability that future conflicts will require. **JFQ**

Notes

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[14] Ibid., 223.

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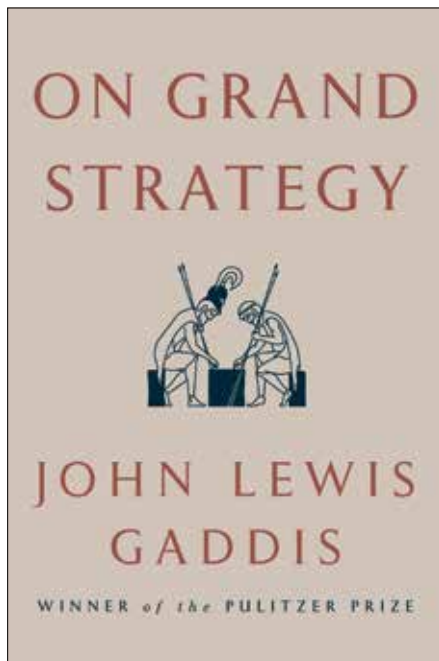
On Grand Strategy

By John Lewis Gaddis
Penguin Press, 2018
$26.00 384 pp.
ISBN: 978-1594203510

Reviewed by Peter Dombrowski

John Lewis Gaddis, deemed the "Dean of Cold War Historians" by a *New York Times* reviewer, has published yet another book, at least the 14th in a long and productive career. The latest, *On Grand Strategy*, however, will disappoint those hoping for another learned exposition on the American role in the post–World War II era. Rather, Gaddis, the Robert A. Lovett Professor of Military and Naval History and Director of the Brady Johnson Program in Grand Strategy at Yale University, has written a wide-ranging essay on strategic thinking that begins with the dawn of recorded history and concludes with the momentous challenges facing American leaders during World War II. As such, *On Grand Strategy* will bring joy to those whose professions depend on strategizing and anyone wanting to rummage through history seeking insights into how past strategists practiced their craft.

Gaddis takes an unusual approach. In effect, he has written a collective and selective history of various critical periods in history by focusing on individual leaders (like Pericles, Octavian, and Franklin Delano Roosevelt [FDR]); their contemporaries (Thucydides, Agrippa, and Harry Hopkins); their internal and external rivals (Archidamus II, Marc Antony, and Joseph Stalin); and, most unusually, strategists and intellectuals facing similar challenges but separated by time and space, as the primary focus of each chapter. For example, the late Oxford political theorist Isaiah Berlin appears throughout the book; Gaddis uses Berlin in order to examine the difference between strategic "hedgehogs" who know one big thing, and "foxes" who know many.

The reason for this approach is clearly thematic. It allows Gaddis to discuss strategic teaching and religion or judge which strategist was grander—but it can also be disorienting and a bit too idiosyncratic at times. Some readers may be left nonplussed, for example, by chapter 4, "Souls and States," which begins with a few paragraphs on George F. Kennan's distant relative, George Kennan, who explored and surveyed Siberia in the latter half of the 19th century. Gaddis uses the example of the senior Kennan to illustrate the theme of chapter 4—that "this fear of understanding roots religion in all great cultures which we know" and thereby introduces a discussion of Augustine (in the 4th century) and Machiavelli (in the 15th century), mixed with a smidgeon of Isaiah Berlin (in the 20th century). Yet Gaddis skillfully ransacks nearly two millennia of Western history to conclude that these strategists prescribed procedures, drew on history, developed "checklists," and deliberately proportioned "aspirations to capabilities" (pp. 116–117). These are good and useful lessons, but following Gaddis's logic through the epochs in history and figures might be hard going for all but the most broadly educated strategic thinkers. At its best, however, the mixing of perspectives by Gaddis provides a broad overview on the challenges and choices facing specific leaders/strategists in today's world.

As enjoyable as it is to read *On Grand Strategy*, I could not help but feel misled by the book's title. This is not, strictly speaking, about grand strategy in the way understood by most historians and political scientists researching and writing in the field today. With a few exceptions, most recent analyses of grand strategy recognize the limits of the so-called Great Man of History approach taken by scholars since Thomas Carlyle in 1840s. In the modern era, it is not enough to understand how a supreme leader seeks to reconcile national ends, ways, and means. It is not enough to understand the stratagems of leaders who also led armies in battle (for example, Xerxes), or who undertook personal diplomatic negotiations with their counterparts (for example, the Big Three of Winston Churchill, FDR, and Stalin). Rather, it is critical to recognize that even the best leaders are constrained by the institutions in which they are embedded. Since the rise of the modern nation-state and the decline of absolutist monarchs, even the brightest, most experienced, and most forceful chief executives must rely on the other organs of state for funds, intelligence, analysis, and, most of all, implementation.

This is true of most of the personalities surveyed by Gaddis. As Geoffrey Parker's fantastic volume *The Grand Strategy of Philip II* (Yale University Press, 2000) makes clear, the Hapsburg emperor could convince himself that to fulfill his earthly mission of unifying Roman Catholic lands and stamping out infidels, he should single-handedly exercise command and control in the form of his own person. By the time of Abraham Lincoln or Otto von Bismarck, much less FDR, even their strategic wisdom required vast bureaucracies to implement—not only large armies and navies but also domestic agencies to raise funds and acquire the instruments necessary to wage both modern war and the peacetime preparations for war. Moreover, few of the modern leaders discussed in *On Grand Strategy* functioned without war councils, strategy development groups, or cabinets (constitutional or kitchen)

to help them formulate strategies great and small.

Shortly before defining *grand strategy* as the "alignment of potentially unlimited aspirations with necessarily limited capabilities," Gaddis makes the case for common sense— "Common sense, in this sense, is like oxygen: the higher you go, the thinner it gets."

To much criticism from both the political left and the right, President Barack Obama famously asserted that his first task as President was "Don't do stupid shit"—a pungent shorthand for "use common sense." It seems that a U.S. President with little formal training in strategic affairs had stumbled upon a truism Professor Gaddis developed over a lifetime of study. Rather than simply do something that conventional wisdom insisted was required, Obama tried to keep his options open, a strategy that Gaddis calls "pivoting." The President took so long to make a decision, however, that he was openly accused of dithering. He pivoted to the point where he even changed his policies when he realized the implications of earlier decisions, such as when he decided not to enforce his proclaimed red line against Syria's continued use of chemical agents.

President Obama might be classified as a proverbial "hedgehog" with an overarching idea that dissatisfied many professional national security scholars and politicians. He pursued what he understood to be common sense and applied Gaddis's preferred "proportionality," even in the face of many foreign policy crises and emerging geopolitical developments. He applied this strategy among his many advisors and the Department of Defense, as well.

As frustrating as that was to many observers, Mr. Obama was simply demonstrating the ability to be both fox and hedgehog by combining approaches. This flexibility, Gaddis claims, is the "strategist's keys to victory." **JFQ**

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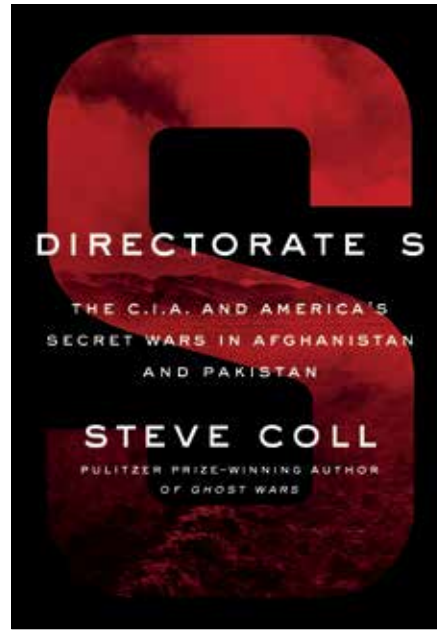
Directorate S: The C.I.A. and America's Secret Wars in Afghanistan and Pakistan

By Steve Coll
Penguin Press, 2018
$35.00 784 pp.
ISBN: 978-1594204586

Reviewed by Thomas F. Lynch III

Directorate S by longtime *Washington Post* journalist, former think tank president, and now dean of the Graduate School of Journalism at Columbia University, Steve Coll, is a seminal book. It is a highly worthy successor to the author's Pulitzer Prize–winning 2004 work *Ghost Wars*. *Directorate S* is impressive in its scope, level of detail, and readability. It successfully fills much of the gaping void in prior literature on the controversial topic of the U.S. role in Afghanistan and Pakistan. As a reference for scholars and policymakers, this book is first rate. Although it will not be the final word on the strategic trajectory of South Asia and the future arc of complex U.S. policy choices in that region, Coll's work makes an indelible mark.

Published in early 2018, *Directorate S* picks up the story of America, Pakistan, and Afghanistan on September 11,

2001—the day after *Ghost Wars* culminated—and takes the saga through 2014. In its more than 750 pages, Coll chronicles the complex web of tensions, rivalries, suspicions, and miscalculations that prevented strategic success for the United States and thwarted a long-planned U.S. departure from Afghanistan. Coll shows how a lack of trust and a misappreciation of deeply held security and cultural narratives among the United States, Pakistan, and Afghanistan—as well as between frequently competing U.S. national security and intelligence agencies—made America's search for decisive victory in Afghanistan languish unrealized for more than a decade and a half.

Directorate S provides an extremely valuable reference for scholars and policymakers working on the complexities of South Asia security. Coll's story is based on at least 100 interviews with a myriad of critical U.S., Afghan, and Pakistani policymakers and their supporting staffs. His interview-based writing is leavened with the experience of a journalist boasting 3 years as a reporter in South Asia and another three decades tracking and writing astute shorter works on the most critical security topics for the region. The number and quality of sources accessed by Coll during the years of his research are remarkable and unique, going well beyond the tell-all political texts of those like journalist Bob Woodward, or political figures Bob Gates and Hillary Clinton.

Directorate S accurately captures the complexities of strategic analysis and the conflicting policy perspectives from Washington to Kabul to Rawalpindi (the home of Pakistan's military and intelligence leadership). Coll logically identifies that the relationship between the Central Intelligence Agency (CIA) and Pakistan's Inter-Services Intelligence Agency (ISI) was the most critical in the multimodal strategic dynamic, but one based on a paradox. The CIA needed the ISI and Pakistani army to gain intelligence on the movement and recruitment of Taliban and al Qaeda militants. Yet the ISI was covertly enabling its Taliban proxies from semi-feudal towns, refugee camps, and jihadist safe havens inside Pakistan

to attack Afghan government and international forces there. In this "double game," the ISI continued Pakistan's decades-long security imperative of facilitating and managing Islamist militant groups like the Afghan Taliban—groups deemed essential to Pakistan's existential struggle with India.

Coll's conclusions are solid and well documented. He finds that the "failure to solve the riddle of the ISI and stop its covert interference in Afghanistan became, ultimately, the greatest strategic shortfall of the U.S. war" and that successive American Presidents "tolerated and even promoted stovepiped, semi-independent campaigns waged simultaneously by different agencies of American government." Coll also chronicles the divide that far too often bedeviled U.S. military interactions with Afghan culture and traditions, featuring the tragedies of Afghan civilians killed in U.S.-led military operations and American personnel killed by supposedly friendly Afghan military and government personnel.

Despite the myriad of personalities and region-specific organizations and terminology, *Directorate S* is crisp and engrossing. Even casual readers should find it to be a page-turner. But 14 years is a long period to cover in an interview-driven narrative and many readers may find 784 pages more than a bit daunting. The pacing slumps a bit with Coll's excursions into the personal stories of individual U.S. and British soldiers in Afghanistan. Understandably, Coll's editors may have wanted to interweave the human toll of complex policy decisions into the narrative, but the micro-level discussion of the personal and often tragic stories dragged on the otherwise crisp pace.

If there is a downside to *Directorate S*, it is found in two missing dimensions. Despite its commendable detail and voluminous, if often anonymous, use of first-person interviews, it seems to lack direct interviews with a couple of critical personae. Among them, Vice President Joe Biden, U.S. Ambassador to Pakistan from 2007–2010 Anne Patterson, and former Chairman of the Joint Chiefs of Staff Admiral Mike Mullen stand out. These key characters have no written

biography to consult for decisionmaking context or to balance against the impressions of subordinate staffers or the naked text Coll cites from Wikileaks cables. Yet as Coll writes, Admiral Mullen had 27 separate meetings and more than 100 phone calls with Pakistan's all-powerful army chief, General Ashfaq Kayani, from 2008 to 2011. Coll speculates about the degree to which Mullen knew about the Pakistani military's intransigence and duplicity. His speculation seems to derive from Wikileaks extracts and from the perspectives of other U.S. actors— few, if any, of whom were on Mullen's staff or in the meetings to see Kayani. Consequently, several critical elements of the U.S.-Pakistan interactions are poorly developed or untold, including the critical yearlong buildup to Mullen's famous call-out of Pakistan's duplicity with the Haqqani Network in front of Congress in September 2011.

Directorate S also is a bit misrepresented as chronologically complete. Coll's introduction advertises a comprehensive history of the U.S. role in Afghanistan and Pakistan from 9/11 to 2016. But its 35 chapters culminate in late 2014 as the United States was making good on President Barack Obama's 2013 decision to draw down almost all U.S. military forces by the end of 2015. Coll offers the reader a short epilogue that covers a couple of the major happenings in Afghanistan and Pakistan from 2015 to 2017. Despite the epilogue, *Directorate S* already feels dated in mid-2018. The story of the United States in Afghanistan and in bilateral relations with Pakistan has moved far, far along since 2014.

In fact, the full story has at least two other acts since 2014. In its next act, staged from 2015 to 2016, the Obama administration encountered the inconvenient truth that a too-rapid exit from Afghanistan led to alarming Taliban gains in territory across south and southwest Afghanistan. Later in 2015 and into 2016, fragments from Afghan Taliban and Pakistan Taliban units declared themselves to be affiliated with the so-called Islamic State and began low-level guerrilla operations across Afghanistan. Coll notes this, but not the fact that the alarm

led Obama to freeze the drawdown of U.S. forces and make changes in rules of engagement to allow for greater pressure on these international terror groups.

U.S.-Pakistan relations also took a noteworthy turn beginning in early 2015. Pakistan's military undertook an extensive antiterrorist operation in its western North Waziristan Province that ran from 2014 to 2017. Simultaneously, U.S.-Pakistan strategic interactions withered and tense rhetoric between the two became far more common, but still with no real change in Pakistan's approach toward Islamist militant groups.

The Trump administration has added yet another major act to the arc of U.S. strategy in Afghanistan and Pakistan during 2017–2018. In August 2017, Donald Trump formally reversed the U.S. troop drawdown planned and then halted under President Obama, threatened greater pressure on Pakistan if it did not alter its policy toward the Afghan Taliban and Haqqani Network, and called for greater Indian economic engagement in Afghanistan. This strategy has yet to produce any major change in the general framework of the policy conundrum faced by the United States in Afghanistan and Pakistan. Thus, Coll's general conclusions about the vexations of U.S. strategy in the region remain largely germane. However, salient contemporary policy dimensions are left unaddressed in *Directorate S*, and many of its details already require updating. Coll's basic insights remain sound, but *Directorate S* already needs a chronological successor.

Its limitations notwithstanding, *Directorate S* is valuable. It is not quite as invaluable as Coll's *Ghost Wars*, but it is pretty close. *Directorate S* is readable, compelling, and an important contribution to the literature on the topic of U.S. strategy in an almost 20-year history across Afghanistan and Pakistan. *Directorate S* merits a prominent place among the most important books on U.S. national strategy published in 2018. **JFQ**

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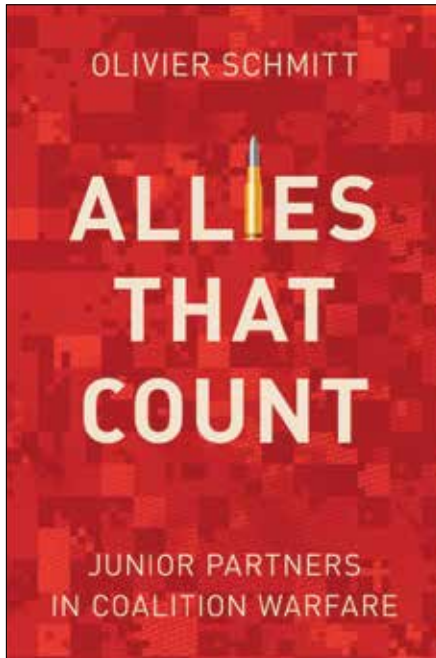
Allies That Count: Junior Partners in Coalition Warfare
By Olivier Schmitt
Georgetown University Press, 2018
$36.95 264 pp.
ISBN: 978-1626165472

Reviewed by Kathleen J. McInnis

Years ago, when I was working on the North Atlantic Treaty Organization (NATO) International Security Assistance Force (ISAF) desk in the Office of the Secretary of Defense, we were asked by both the George W. Bush and Barack Obama administrations to help persuade allies and partners around the world to contribute additional forces to the mission in Afghanistan. To their credit, many countries around the world did so. But shortly thereafter, operators on the ground began signaling that many such contributions were so difficult to integrate into the mission that it was distracting from ISAF's ability to prosecute operations. Some states had caveats on their forces, others had interoperability issues, and still others approached the mission with wholly different strategic mindsets than many of their counterparts. In short, we

were building the coalition to help us win the war in Afghanistan, but in so doing, we were distracting our warfighters from *actually* being able to do so. Why were we spending so much time and effort recruiting forces from allies without accounting for the significant operational strains that their incorporation into the ISAF force laydown might cause?

It would be easy chalk up the NATO ISAF coalition force generation process—and its outcomes—to one of the many problems inherent in conducting complex operations, especially those that involve allies and partners from many states. But it seemed that there was something deeper at play: a failure to appreciate, at a conceptual level, what best practices in coalition-building and management looked like. What were the tradeoffs between adding flags to bolster a coalition's legitimacy and operational effectiveness? Was prioritizing numbers of boots on the ground the right way to think about force generation, or should we have prioritized quality over quantity?

No coalition warfare "best practice" playbook existed at the time. Indeed, despite how important it was from a national strategic perspective to get coalitions "right," when I began my own research on coalition warfare in 2012, I found out quickly that the academic scholarship on these questions was limited. Lessons learned from the force generation experiences of prior post–Cold War coalitions such as the Balkans and the United Nations Operation in Somalia II interventions floated around, but most of them focused on the nuts and bolts of coalitions rather than defining heuristic models needed to help decisionmakers critically evaluate and make sense of the complex dynamics of coalition warfare. Especially when considering that successive U.S. national-level defense strategy documents have consistently noted the importance of coalition warfare to the overall advancement of U.S. national security objectives, more theorizing was—and is—necessary if we are going to be able to prevent ourselves from repeating past behaviors and expecting different results.

Fortunately, academia is increasingly turning its attention to these issues. Enter Olivier Schmitt's recently published book, *Allies That Count*. It is a volume that seeks to answer the questions that we had no theoretical or conceptual framework to answer when I was in the Pentagon: what qualities make allies useful in coalition warfare, and when are they more trouble than they are worth?

By comparing the experiences of select junior coalition partners in the Persian Gulf War, the Kosovo intervention, Operation *Iraqi Freedom*, and ISAF, Schmitt helps us understand when, and how, coalition contributions have the most utility for the overall conduct of the campaign, both strategically and operationally. In order to do so, he breaks down utility into two main categories: political and military. Political utility, according to Schmitt's formulation, comprises a state's international political standing and its behavioral norms, such as respect for humanitarian law. Military utility, by contrast, comprises a state's integration (both in terms of the size of the force element it contributes to a coalition and its ability to interoperate with coalition partners); responsiveness, or its ability to adapt to evolving circumstances; skill, which refers to a state's military being sufficiently trained and capable to the mission; and quality, which refers to the equipment that a military has as well as its ability to minimize tradeoffs between firepower, maneuverability, and others.

In evaluating these different attributes of a state's contribution to military coalitions, he finds that partners with the most utility have a high degree of integration and quality, as well as a high degree of international political standing. Standing helps bring international political legitimacy to an intervention—perhaps even more so than the number of flags associated with a given operation. Integration and quality are the key factors that allow fielded forces to get the job done. It is a good way to conceptualize the interaction of strategic- and operational-level dynamics, and a helpful rubric for assessing which partners will add utility to a campaign, and which ones may contribute

more strategic and operational headaches from the perspective of coalition leaders. Ultimately, Schmitt concludes that when it comes to coalition operations, "the more is not necessarily the merrier."

As with any book, there are areas that the author could have further developed. For example, it would have been interesting for Schmitt to more fully explore a state's strategic culture and its associated operational or political risk thresholds as part of the analysis. A state may have utility by Schmitt's formulation, but if there is a limited political-level appetite to undertake hard tasks involving considerable military risk, that surely must diminish the usefulness of a state's contribution.

Still, given what Schmitt set out to do—an enormous task in its own right—his analysis delivers a compelling answer to the question of how to judge a coalition partner's utility. His work, in turn, compels us to assess its effects on how we build future multinational military operations. What does this mean for coalition construction and burden-sharing in the future? Many key U.S. allies have significantly shrunk their defense budgets in the 1990s and 2000s; it is therefore much more difficult for those countries today than it was in 1991 to deploy and sustain brigade-size force elements. Under these conditions, if integration, judged in terms of interoperability *and* numbers of forces that a state can contribute, is critically important, what does it mean when a state does not have the quantity of forces to sufficiently integrate? Moreover, especially given that the 2018 National Defense Strategy states the United States will continue to rely on coalition partners, is a state's assumptions about its actual ability to contribute in a manner that does not constrain campaign effectiveness valid? If not, what must be done—both now and in the future—to rectify or ameliorate the situation? When is a larger and more robust coalition constellation worthwhile and when does it become a liability? **JFQ**

Dr. Kathleen J. McInnis serves as an Analyst for International Security at the Congressional Research Service and is the author of *How and Why States Defect from Coalition Operations* (Palgrave Macmillan, forthcoming).
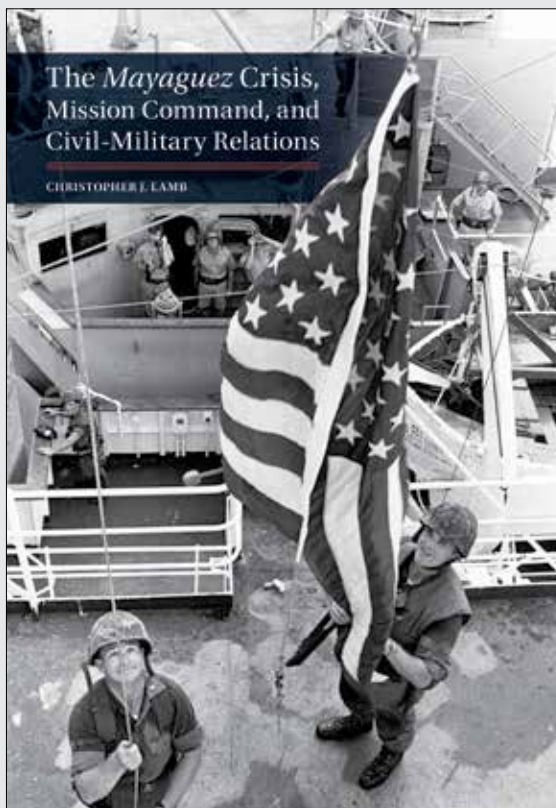
New from the Office of Joint History

The Mayaguez Crisis, Mission Command, and Civil-Military Relations

By Christopher J. Lamb
2018 • xxiv + 284 pp.

President Gerald R. Ford's 1975 decision to use force after the Cambodians seized the USS *Mayaguez* merchant ship is one of the best documented but least understood crises in U.S. history. U.S. behavior is still explained as a rescue mission, a defense of freedom of the seas, an exercise in realpolitik, a political gambit to enhance Ford's domestic political fortunes, and a national spasm of violence from frustration over losing Vietnam. Widespread confusion about what happened and why it did contributes to equally confused explanations for U.S. behavior.

Now, with new sources and penetrating analysis, Christopher J. Lamb's *The Mayaguez Crisis, Mission Command, and Civil-Military Relations* demonstrates how three decades of scholarship mischaracterized U.S. motives and why the common allegation of civilian micromanagement during the crisis is wrong. He then extracts lessons for current issues such as mission command philosophy, civil-military relations, and national security reform. In closing he makes the argument that the incredible sacrifices made by U.S. Servicemen during the crisis might have been avoided but were not in vain.
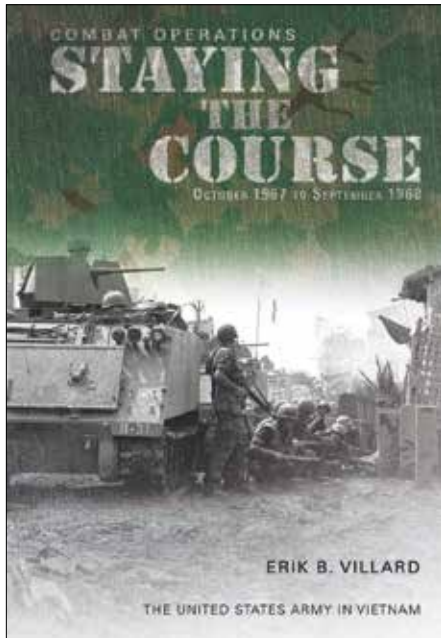
Staying the Course: October 1967 to September 1968

By Erik B. Villard
U.S. Army Center of Military History, 2017
773 pp. $35.00*
ISBN: 978-0160942792

Reviewed by Jon Askonas

Erik Villard's new volume casts clarifying light on stubbornly held myths about the conduct and strategy of America's intervention in Vietnam. Even more than the preceding volumes in the Combat Operations series, *Staying the Course* incorporates the latest historiography, including extensive North Vietnamese sources and newly released Military Assistance Command–Vietnam (MACV) documents. By carefully linking American strategic thinking to MACV 1968 campaign goals and actual operations, Villard, a historian at the U.S. Army Center of Military History, uses careful analysis to dispel a variety of myths: that MACV was over-focused on attrition, that the American mission lacked a focus on counterinsurgency or population security, that the Army was overcommitted to "conventional"

operations or "search-and-destroy," or that American forces overlooked the need to build up the South Vietnamese military and do so in a sustainable way. The overall effect is to restore clarity and urgency to the Army's efforts in Vietnam in that fateful year, as MACV's leaders fought against the clock to shield and secure the population and build up the Republic of Vietnam and its armed forces against a thinking and reacting enemy with burgeoning plans of its own.

Villard's approach fits within what might be called the New Revisionism in Vietnam War military history, standing alongside Greg Daddis's *Westmoreland's War* (Oxford University Press, 2014), Lien-Hang T. Nguyen's *Hanoi's War* (University of North Carolina Press, 2012), and Martin Clemis's *The Control War* (University of Oklahoma Press, 2018). Contra the orthodox historians of the Vietnam War, the New Revisionists disclaim broad-brush characterizations of American or South Vietnamese incompetence, hubris, or connivance at every level. With careful evidence and access to new sources, they reconstruct American strategy-making, operations, and tactics and put them in political and international context. American leaders were generally sober, focused, informed, savvy, and sincere; in the field, American units were usually disciplined, ferocious, adaptive, and worked well with the Vietnamese. These historians view the Vietnam War as a deeply complex event, one that resists any kind of "meta-solution" or silver bullet explanation of victory or defeat. But while they have built on some of the earlier revisionists' rehabilitation of U.S. military efforts in Vietnam, the New Revisionists have little sympathy for any simplistic notions that America "snatched defeat from the jaws of victory" or that the Nation was betrayed by fickle politicians, military incompetence, a back-stabbing media, or the antiwar movement. By focusing on the agency of the North and South Vietnamese in determining their fates, the New Revisionists highlight the limitations of American military power, even when applied with wisdom and insight.

While Villard focuses on American combat operations in a narrow timespan, these larger themes come through in a compelling way. In earlier military histories, the North Vietnamese and Viet Cong come across as a faceless, shadowy, alien, and unthinking force, like the monsoon rains. In Villard's narrative they are a proper enemy with goals, strategy, planning, command and control, logistics, and every kind of operational constraint. And, like any enemy, they attempt to adapt to American efforts, sometimes successfully and sometimes unsuccessfully. Detailed, careful analysis allows Villard to usually present American, North Vietnamese, and South Vietnamese operations in ways that make them meaningful. Not only big events like the Tet Offensive or the Battle of Khe Sanh, but minor engagements like the battle for the Special Forces camp at Kham Duc or small-unit counterinsurgency in II Corps in Summer 1968 seem like part of an actual campaign, where a tactical outcome plays a part in both sides' strategies. While the level of detail can be numbing, the payoff is an approximation of what Carl von Clausewitz labeled *ortsinn*—the sense of locality that enables a commander to read the battlefield and make sense of the enemy's activities in the context of physical and human terrain. Villard helps us understand how William Westmoreland and his chief subordinates—men like Creighton Abrams, Fred Weyand, William Rosson, Julian Ewell, and John Tolson—saw the war.

And their visions, generally, come across as clear, nuanced, and contextualized. MACV's goals are unified across the country: maintain and expand population security, in part by deterring North Vietnamese conventional forces; support development and pacification through civic action; and train up the Republic of Vietnam Military Forces. But how that mission is carried out, and what matters most, is a matter of physical and social geography. Up north in I Corps Tactical Zone (CTZ), III Marine Amphibious Force and some Army elements supported the Army of the Republic of Vietnam in defending major cities along the coast, while trying to maximally

disrupt the flow of North Vietnamese men and materiel southward along the Ho Chi Minh Trail, vitally important to MACV's strategy in the rest of the country. In sparsely populated II CTZ, First Field Force placed a heavy emphasis on security, presence, and development operations in the hamlets surrounding Dak To (60 percent of the provincial population), but saw taking the fight to the enemy in its highland strongholds as a means of avoiding additional civilian casualties. In III CTZ, Second Field Force shielded the approaches to Saigon and used air mobility to disrupt main force units, while applying maximum support to both American and South Vietnamese counterinsurgency efforts in the provinces ringing Saigon. In the populated delta of IV CTZ where the enemy was mostly Viet Cong living among the people, 9th Infantry Division commander Julian Ewell placed a heavy emphasis on operations with and the training of local South Vietnamese forces. In any case, whatever plans MACV had for steady progress in 1968 were thrown into disarray by the Tet Offensive. Although Tet created as many opportunities as constraints—and ended up being a real operational victory for MACV—it also created new demands on MACV's limited resources and pushed the American public toward withdrawal.

In a book as long as *Staying the Course*, having a clear structure makes all the difference. Villard tracks corps- and division-level activites in each of the four CTZs from October 1967 through September 1968. The book is roughly divided into three sections: before Tet, the Tet Offensive, and the aftermath. The before and after Tet sections are short scene-setting chapters overviewing important political and strategic dynamics (both in America and Vietnam), and within each section is roughly a chapter on each CTZ. The clear but dense text is accompanied by scores of photos and over 50 maps that help to breathe a little life into page after page of operational detail and after-action anecdote. Villard sticks to his ambit, perhaps to a fault. He focuses exclusively on helping the reader understand U.S. combat operations in Vietnam, with minimal digression into

strategy, politics, or other aspects of the war. The result is necessarily a truncated view of American engagement with the Vietnam War. Nevertheless, Villard has set out not to write a general history but to fill the gap of operational-level military history in Vietnam, and he fulfills his mission.

While Villard's narrative ends well before the war concludes, one can discern in the shadows of 1968 what is to come. The North Vietnamese are far more resolute, patient, and adaptable than the initial American strategy had given them credit for; even when faced with staggering losses, they maintain the strategic initiative. The Republic of Vietnam, though growing steadily, faced substantial handicaps, building up its military and counterinsurgency infrastructure essentially from nothing. Moreover, the enemy had the strategic initiative and could disrupt pacification progress whenever it wanted, using conventional offensives, terrorism, rocket attacks, and other means to seize territory, assassinate effective local officials, recruit new troops, and generate destabilizing refugees. Moreover, little could be done to avert the social and economic destabilization caused by the mere presence of nearly 700,000 foreign soldiers. And while many Americans came to believe that they could not "win" the war after Tet, even more began to question whether they could trust their leaders to tell them the truth about it, and whether it was worth the substantial cost. **JFQ**

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* This book is available for free download in PDF format at <https://history.army.mil/html/books/091/91-15-1/index.html>. It is also available for purchase in hardcopy from the Government Publishing Office online bookstore at <https://bookstore.gpo.gov/products/combat-operations-staying-course-september-1967-october-1968>.

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USAID Assistant Administrator for Democracy, Conflict, and Humanitarian Assistance Nancy Lindborg meets with Syrian refugees at Islahiye Refugee Camp in Turkey, January 24, 2013 (State Department)

The U.S. Government's Approach to Civilian Security
Focus on Campaign Activities

By George E. Katsos

I n an effort to cross-reference U.S. Government policies, practices, and joint doctrine with human security,[1] this article completes the discussion[2] on its most relevant dimensions—health, food, environmental, and economic security—with a combatant commander

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campaign activity focus on civilian security (personal, community, political).[3]

Protection from violence is crucial for people, especially vulnerable populations. The inability to establish and maintain safe and secure environments through effective governance may result in population dislocation or displacement.[4] These conditions can overwhelm institutional capacities and disturb regional norms, resulting in assistance or intervention from security providers such as the United Nations

(UN), North Atlantic Treaty Organization (NATO), or the U.S. Government. For civilians who remain in place, the pursuit of desperate or questionable measures to steady a favorable environment or attain a better standard of living may also result in counterproductive stabilization practices and weaken the foundation of civilian security and society as a whole. Therefore, viable security institutions and their active role in providing civilian security are central to U.S. national security interests.

Definitions and Descriptions

Both governmental and nongovernmental documentation provide insight through definitions and descriptions on current protection practices in order to present a better understanding of civilian security as an element of effective governance. For the U.S. Government, the White House defines *protection* as capabilities necessary to secure the homeland against acts of terrorism and manmade or natural disasters.[5] Within the executive branch, the Department of Homeland Security (DHS) defines protection as actions or measures taken to cover or shield from exposure, injury, or destruction including those needed to ensure protective reactions that do not unnecessarily interfere with citizen's freedoms and liberties.[6] The Department of Defense (DOD) adds another definition of protection: to preserve the effectiveness and survivability of mission-related military and nonmilitary personnel, equipment, facilities, information, and infrastructure deployed or located within or outside the boundaries of a given operational area.[7] DOD policies further discuss protection as peace-keeping forces that employ active and passive measures to protect themselves against adversaries, accidents, diseases, and other threats to mission success.[8]

Outside of the government, international organizations such as the UN use the terms *protection* and *protection of civilians* when addressing issues related to civilian security. Based on mandate language in UN Security Council Resolutions (UNSCRs), descriptions focus on preventing or responding to threats of physical violence against civilians by the host government. Other definitions in UN workforce documentation include protecting civilians under imminent threat of physical violence and also acknowledge state obligations under international humanitarian law (IHL), international human rights law (IHRL), and refugee law.[9] Regional organizations such as NATO define protecting civilians as activities conducted with the intent to safeguard noncombatants from physical violence, secure their rights to access essential services and resources, and contribute to a secure and stable environment for civilians over the long term.[10] This approach informs the understanding of operational environments including efforts that alleviate harm, facilitate access to basic needs, and contribute to safe and secure environments.[11] Additionally, NATO descriptions include avoiding, minimizing, and mitigating negative effects that might arise from military operations, conflict-related physical violence, or threats of physical violence by other actors.[12] The International Committee of the Red Cross (ICRC) defines protection as all activities aimed at obtaining full respect for the rights of the individual in accordance with the letter and spirit of the relevant bodies of law, while the concept as a whole ensures authorities and other constituted groups comply with their obligations under IHL, IHRL, and refugee law.[13]

For purposes here, civilian security includes supporting law and order, the rule of law, and establishing security through effective governance (for example, viable police, justice, and defense systems). These measures contribute to addressing policy issues on sheltering civilians from physical and systematic violence (personal security), providing family and culture protection from identity-based tensions (community security), and protecting from oppressive governing practices such as repression and human rights abuses (political security).[14]

Legislative and Judicial Actions

U.S. legislative and judicial efforts address civilian security concerns within the boundaries of the Constitution. Per legislative action, Congress develops Federal laws in support of issues such as national defense and protection from oppressive domestic governing. For the latter, the Constitution contains provisions that protect civilians from unlawful imprisonment or detention, punishment for conduct not illegal at the time performed, punishment focused on individuals or groups, states favoring their own citizens over others, and unreasonable searches per the Bill of Rights. Constitutional amendments passed after the Civil War acknowledge citizenship rights, legal and equal protections under the law, and voting rights. Congress can also limit the Federal Government and executive power such as preventing Federal military personnel from enforcing domestic policies at home.[15] More recently, Congress authorized the use of military force against nations, organizations, or persons that plan, authorize, commit, or aid in terrorist attacks in order to prevent any future acts of international terrorism against the United States.[16]

Regarding governmental functions, Congress can create, eliminate, or restructure executive branch entities and agencies. In the first year of George Washington's Presidency, Congress created the position of Attorney General that now leads the Department of Justice. After World War II, Congress established the Central Intelligence Agency, National Security Council, U.S. Agency for International Development (USAID), and DHS.[17] For significant judicial decisions, the Supreme Court is the final arbiter of legal issues to be resolved under Federal law. After the Civil War, some rights codified in constitutional amendments were not observed, as subsequent Supreme Court decisions undermined civilian security protections that could have extended under state law.[18] However, by the mid-20th century these rights were eventually enforced by subsequent court decisions and new legislation.[19]

International Engagement

For over a century, the United States has been involved in protecting civilians outside national borders. After World War I, the United States joined the League of Nations to mitigate future conflict between nations. By the end of World War II, the UN replaced the league and broadened its purpose over time to protect civilians beyond the effects of conflict. In 1949, the United States became a signatory to a set of international treaties and protocols known as the Geneva Conventions to protect civilian victims during armed conflict and internal violence. Building on the Geneva Conventions, the Nation ratified the 1954 Hague Convention

U.S. Army captain, 1st Security Force Assistance Brigade, advises Afghan National Army major about security in Logar Province, Pul-e Alam, Afghanistan, August 7, 2018 (NATO/U.S. Navy/Aubrey Page)

for the Protection of Cultural Property in the Event of Armed Conflict. In the years following World War II, a body of law was created around IHL (also known as the Law of Armed Conflict) to limit the effects of perpetrator actions against stability and further codify noncombatant legal protection. More recently, IHRL developed as a broader body of law where nations are determined to have a collective duty to protect their own civilian populations against genocide, war crimes, ethnic cleansing, and crimes against humanity.

In the spirit of IHRL, UNSCR mandates contain modern "responsibility to protect" language that holds individual national authorities accountable for civilian protection violations.[20] In support of both IHL and IHRL, the International Red Cross and Red Crescent Movement supports civilian security through its components: the ICRC (humanitarian

protection and assistance in armed conflict and violent situations), International Federation of Red Cross and Red Crescent Societies (coordinates efforts of national societies to provide humanitarian assistance primarily in disaster relief and public health), and National Red Cross/Red Crescent Societies (auxiliary entities to national governments).

The Executive Branch

Civilian security fosters confidence in effective governance. Under Article II of the Constitution, the President is granted authority to cultivate that confidence through executive power to protect the people from internal and external threats. As such, the President approves the National Security Strategy to articulate strategic policy goals and national power direction on matters related to civilian security. Subsequently, executive branch departments produce

organizational strategies and plans in support of the President's strategy. In furtherance of setting a political agenda, the President can issue multipurpose policy direction through executive orders to the executive branch on topics such as combating the trafficking of persons and minimizing civilian casualties when applying military force.[21] Executive orders issued specifically for national security purposes are called Presidential directives. Relevant directives include combatting terrorism, counternarcotic activities, and mass atrocity prevention. The following overview captures governmental civilian security efforts within the executive branch in three cascading categories: significant, additional, and remaining.

Significant Efforts. Two departments and their agencies partake in significant civilian security efforts through varying degrees of assistance: the Department of

State and Department of Justice. State manages foreign diplomatic affairs for the President while its development component (USAID) implements economic initiatives and facilitates disaster assistance abroad.[22] Through diplomacy and development, State and USAID provide a competitive, forward-deployed political capability that can also facilitate security-sector assistance abroad in support of national security objectives.[23] At State, many department bureaus lead efforts to develop partner capabilities and build institutional capacities of nations or other organizations that may eventually contribute troops, police, or security forces to future stabilization missions. Bureaus also advance efforts to mitigate conflict; support law and order and police force establishment, maintenance, or reforms; and provide solutions for the displaced. For development and relief purposes, USAID bureaus and offices promote human rights, democratic governance initiatives, and coordinate responses to overseas disasters.

Justice is another entity that supports civilian security. Managed by the Attorney General, Justice preserves confidence in the U.S. judicial system; administers Federal law enforcement entities; and establishes, enables, or reforms justice systems abroad through security sector assistance. Justice components such as its Federal Bureau of Investigation uphold the Constitution and protect the American people from threats. Other entities confine criminal offenders, enforce laws and regulations that bring perpetrators to justice, and consolidate operations such as counterterrorism, counterintelligence, and export control. To support crisis response mechanisms at home, Justice manages the National Response Framework's Emergency Support Function #13 Public Safety and Protection that facilitates Federal public safety and security assistance to local, state, tribal, and territorial organizations overwhelmed by an actual or anticipated disaster or act of terrorism.[24]

Additional Efforts. Other departments make substantial contributions to civilian security. DHS identifies vulnerabilities to U.S. security and develops protective measures through coordinated responses to emergencies, Presidential direction, and critical infrastructure and key resource protection.[25] Via its Federal Emergency Management Agency, DHS manages Federal assistance to help populations in state, local, tribal, territorial, and organizational entities.[26] Through the Coast Guard, DHS facilitates legitimate usage of waterways subject to U.S. jurisdiction.[27] Moreover, its Customs and Border Protection and Immigration and Customs Enforcement agencies monitor border crossing, immigration, and illegal entry issues.

DOD supports civilian security efforts primarily through its military workforce.[28] Besides providing territorial and physical security, DOD assists governmental efforts to disrupt and prevent adversarial and competitor practices that negatively impact national interests such as stability, security, and democratic systems across the globe. Abroad, DOD defense institution-building efforts increase partner-nation abilities to meet security needs and contribute to regional and international security more effectively.[29] At home, DOD leads homeland defense missions and supports civilian authorities.

Remaining Efforts. Outstanding departments also impact civilian security. Efforts include the Department of Energy's role in nuclear safety, Labor's enforcement of child labor laws and human-trafficking prevention, Interior's focus on Native American safety, Treasury's strategic threat disruption efforts to deter financial practices that threaten stability, and Health and Human Services management of refugee centers that assist in American society integration.[30] As governmental entities continue to develop plans in support of national security policy objectives, the future is uncertain on how these entities will protect civilians during international systems disruption and complete collapse or from the effects of aggressive competitor measures and severe population displacement.

Military Campaign Activities

Civilians who are neither part of an armed group nor engaged in hostilities are protected under the law of war.

Threats to civilian security that nations and state-like entities encounter or generate may involve a response from security institutions such as DOD. In support of governmental activities, combatant commanders and their staffs integrate force protection as well as civilian security considerations into plans, preparation, training, and missions. To socialize DOD's role in the pursuit of civilian security, discussions and implications appear in joint doctrine, including traditional and irregular approaches that earn population support and the mitigation of civilian casualties in military operations.[31] While many terms describe DOD support to civilian security efforts (investments, deployments, operations, cooperation, assistance), this discussion refers to them as campaign activities.

Campaign activities involve offense, defense, and stability components. Offensive actions can neutralize threats, defensive actions can reduce vulnerabilities, and contributions to stabilization efforts can influence political dynamics, all in support of protecting civilians.[32] At the international level, DOD can provide support to peacekeeping, security-sector, and stabilization commitments through individual expertise and workforce contributions. At the regional level, DOD participates in security and stabilization efforts normally with contributions to a regional military workforce. At the national level, DOD conducts or supports activities to achieve national objectives and enable civilian authorities to build or strengthen institutional systems (police, justice, defense).

U.S. military resources used for civilian security may be independent conventional forces, conventional forces that leverage capabilities of U.S. special operations forces, or independent special operations forces. Depending on the rules of engagement and operational environment, campaign activities in support of civilian security may not always be feasible to implement due to competing operational interests that a commander must assess, such as the inherent right of self-defense and combat. For DOD, civilian security can decrease the threats that cause civilians and vulnerable populations

Coalition advisor plays game with child during tour of Manbij, Syria, June 21, 2018, to document how safe and prosperous it has become since Syrian Democratic Forces defeated so-called Islamic State (U.S. Army/Timothy R. Koster)

(identity-based groups, women, children) to relocate, thus mitigating the need for future U.S. military deployment. At home, DOD leads the homeland defense mission and provides defense support to civil authorities. The following sections articulate DOD contributions to civilian security efforts by, with, and through international stakeholders and host-nation partners.

Effective Governance. DOD conducts short- and long-term campaign activities in support or in place of civilian administration. Through a range of military operations, effective governance can result in protecting civilians against physical violence, crime, terrorism, and other harm in locations where security forces occupy or operate. For security recipients, ministry or security institution development is better conducted simultaneously and not under different time horizons.[33] For nations and state-like entities, institutional development and reform may be

conducted either through a transitional military authority to exercise executive, legislative, and judicial authority, or a transitional civilian authority to establish legitimate and effective governance. Both can transition to a viable national or state-like entity authority or institution. DOD campaign activities include instituting political reform and supporting elections, restoring basic essential services, and creating effective civil administrative frameworks to protect civilians.

Police force and institution development strengthens law and order efforts and is usually conducted by the United States or by, with, and through a ministry of interior. When a central authority is weak or ceases to exist, perpetrators of violence can target civilians to pursue power. Campaign activities can ensure basic law enforcement, public order, training and education, and counter perpetrator violence. When the rule of law has broken down or is nonexistent,

DOD can provide transitional public security to enforce the rule of law until efforts are transitioned to competent, viable, and responsible forces and institutions. Campaign activities include persistent efforts in areas secured and held usually through intensive patrolling and checkpoints, targeted search or strike operations against adversaries, population control measures such as curfews and vehicle restrictions, biometrics collection and vetting, and integration of indigenous ex-combatants into newly formed host-nation police forces. In Iraq in 2003, U.S. Central Command (USCENTCOM) supported international efforts to create a competent and responsible Iraqi police service that could maintain law and order, enforce the rule of law, and build confidence in the population that effective governance would protect them. DOD's continued involvement includes training, advising, and assisting recruits and police forces in areas

including integration of former fighters into the force and forensic science development.[34] In 2009 in Afghanistan, USCENTCOM assumed responsibility from the State Department to train, advise, and mentor members of the Afghan National Police and, in 3 years, led 8 of 23 NATO training program sites.[35]

Judicial frameworks strengthen the rule of law most likely under a ministry of justice. With central authority turnover and subsequent governance challenges, perpetrators of violence can target civilians to undermine effective governance and the rule of law. Beyond providing security, DOD can protect administrators of justice such as judges and their families as well as build courts and jails. In support of building or upholding an effective judicial system, a military governing authority may operate military commissions and provost courts, establish and provide security to courts and tribunals, support investigations, and arrest war criminals.

During 2007 in Iraq, USCENTCOM personnel assisted Iraqi authorities to create and operate the Baghdad Rule of Law Complex that combined courts, jails, and an academy where personnel and faculties were protected from harassment and threats. Subsequent complexes were built in other cities across Iraq, sending the signal that administering the rule of law was foundational in rebuilding civil administration and providing civilian security.[36] In Afghanistan from 2002, DOD assisted efforts to build or renovate courthouses and facilities and established the Rule of Law Field Force Afghanistan to improve judicial infrastructure in provinces, train on evidence-based operations for judicial actors and law enforcement, and public outreach efforts on Afghan law and trials.[37]

Defense or security support can strengthen a ministry of defense system and force capacity. With central authority turnover and subsequent security challenges, perpetrators of violence can challenge national sovereignty, civil administration, and governmental institutions and target civilians to undermine effective governance in pursuit of power and influence. In support of defending a nation's sovereignty, a competent, viable,

and responsible defense or security force can deny access or safe havens to individuals or groups that present a threat to civilian security. In Iraq, USCENTCOM personnel trained Iraqi Security Forces to include the Iraqi army and assisted in counterterrorism, civilian protection, and border security missions. Targeted action was brought against violent extremist organizations such as the so-called Islamic State and its ability to hold onto Iraqi territory.[38] In Afghanistan, USCENTCOM leads efforts to train and equip the Afghan National Security Forces, including the Afghan National Army, to combat threats from the Taliban and al Qaeda and continues to provide support to the NATO International Security Assistance Force in the capital region of Bagram.[39] At home, U.S. Northern Command and U.S. Pacific Command provide support to civil authorities that can augment existing capacity and assist in the restoration of essential basic services.

Oppressive Governing and Perpetrators of Violence. DOD campaign activities can support the coercion of uncooperative governing authorities and other entities into protecting citizens. Campaign activities include a range of military operations from armed conflict to competition that may improve conditions for populations and prevail against threats generated by a central authority, its security forces, or perpetrators of violence that operate autonomously within a country's borders.[40] Through campaign activities, U.S. forces can assist in enforcing and upholding societal norms in the face of regime repression, human rights abuses, improper detention and imprisonment, torture, mass atrocities, corruption, human-trafficking, and child labor. This includes the protection of cultural, ethnic, and religious identity; religious locations and shrines; family systems; women and children; personal values; static protection of key sites (market places or refugee camps); and human rights.

Offensive efforts to protect civilians are normally authorized by an international political body such as the UN to target a central authority or perpetrators of violence within a country's borders.

One element is regime change where a central authority is removed in order to deter or neutralize negative treatment such as mass atrocity, political or state repression, or other harm to civilians. In 2011, U.S. Africa Command (USAFRICOM) provided air strikes under UN authority that was followed up by NATO operations against an oppressive Libyan regime.[41] In this action the central governing authority was removed. More recently, campaign activities with Iraqi and Afghan forces were able to counter sectarian and other forms of violence.[42] Other campaign activities include safe area designations that can marginalize adversaries or threats to civilians.

However, armed conflict also involves unintended consequences such as civilian casualties and key site vulnerabilities during and after military operations. Civilian deaths caused by U.S. military operations often fuel narratives that support resistance to U.S. influence and even energize the targeting of Americans. Additionally, key sites such as the National Museum of Baghdad, libraries, or religious properties make "no target" lists, but the buildings' security may not be immediately provided to prevent looting. Nevertheless, recent emphasis on civilian casualty mitigation and key site vulnerability practices confirm the importance of civilian security to the chain of command from the top down.[43]

Other defensive and stabilization efforts support civilian security and can increase confidence in a state's ability to protect daily life. Campaign activities include a variety of human security elements captured in this five-part series (health, food, environmental, economic, civilian) that protect individuals and populations from negative treatment such as torture, ill treatment, unlawful detention and imprisonment, human rights abuses, and free election disruption. International security providers can establish a safe area to provide direct protection to civilians within a nation's borders in a temporary and designated geographic area. Normally authorized through UNSCRs, safe areas involve safe zones (large areas that physically protect civilians where they normally live) and safe havens (protecting

displaced or dislocated civilians in specific places) where civilians are protected by denying belligerents access through the threat or use of military force. In safe areas, organizations such as the UN and nongovernmental organizations usually authorize no-fly zones, build and administer camps, and provide basic assistance and services.

Recent campaign activities include USCENTCOM's support of northern and southern Iraq no-fly zones and USAFRICOM's no-fly zone efforts in Libya. DOD built and administered camps in northern Iraq to feed ethnic Kurds and in Albania to protect Kosovar refugees in the 1990s.[44] Today, campaign activities support displaced civilians through the transportation of supplies from one stop to another en route to a final camp destination.[45] Safe havens are also ungoverned, undergoverned, or ill-governed physical and virtual areas where U.S. adversaries believe they can operate without harassment. Whether most recently in southeastern Afghanistan or northern Iraq and eastern Syria, extremist organization safe havens are used to terrorize civilian populations into submission but can be removed with active offensive measures. At home, DOD can support civilian authorities through an Active-duty base commander's immediate response authority or command over federalized National Guard forces for emergency response. Presently, federalized National Guard forces are deployed to the southern borders for defensive purposes;[46] however, Federal military personnel are prevented from enforcing domestic policies at home per the Posse Comitatus Act.

Campaign activities can enhance efforts to improve conditions for effective governance, alleviate population concerns that cause displacement or counterproductive activity, and prevent the need for future or extended employment of U.S. forces. Still, aggressive competitors and perpetrators of violence find opportunities to impose their own version of civilian security when confidence in governance erodes or disappears. Therefore, it is critical to keep viable security

institution establishment and reinforcement central to government efforts in the pursuit of productive civilian stabilization practices and civilian security. **JFQ**

Notes

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²¹ See Executive Order (EO) 13257, *President's Interagency Task Force to Monitor and Combat Trafficking in Persons* (Washington, DC: The White House, February 13, 2002); and EO 13732, *United States Policy on Pre- and Post-Strike Measures to Address Civilian Casualties in U.S. Operations Involving the Use of Force* (Washington, DC: The White House, July 1, 2016).

²² Pub. L. 105-277, div. G, subdiv. A, title XV, § 1522, October 21, 1998, 112 Stat. 2681-794), 22 *U.S. Code* § 6592, "Administrator of AID Reporting to Secretary of State."

²³ *FY 2018–2022 Department of State and USAID Joint Strategic Plan* (Washington, DC: Department of State, 2018), 11, 23, 35, 40; and *FY 2014–2017 Department of State and USAID Strategic Plan* (Washington, DC: Department of State, 2014).

²⁴ "Emergency Support Function #13: Public Safety and Security Annex," Federal Emergency Management Agency, available at <www.fema.gov/media-library-data/1470149136419-d6dc70a586f4b0bc8f0c689008974f44/ESF_13_Public_Safety_and_Security_20160705_508.pdf>.

²⁵ *United States Government Compendium of Interagency and Associated Terms* (Washington, DC: The Joint Staff, July 2018), 706, available at <www.jcs.mil/Portals/36/Documents/Doctrine/dictionary/repository/interagency_associated_terms.pdf?ver=2018-01-02-104007-367>; *National Infrastructure Protection Plan 2013: Partnering for Critical Infrastructure Security and Resilience* (Washington, DC: Department of Homeland Security, 2013).

²⁶ *Fiscal Years 2014–2018 Strategic Plan* (Washington, DC: Department of Homeland Security, 2014), 13, 21, 22; *Department of Homeland Security Strategic Plan Fiscal Years 2012–2016* (Washington, DC: Department of Homeland Security, 2012), 19; and "Emergency Support Function #13."

²⁷ Maritime Law Enforcement Program, U.S. Coast Guard, available at <www.overview.uscg.mil/Missions/Maritime_Law/>; *Fiscal Years 2014–2018 Strategic Plan*, 7, 8, 13, 14, 20, 28.

²⁸ *National Defense Strategy* (Washington, DC: DOD, 2018); *National Military Strategy* (Washington, DC: The Joint Staff, 2016).

²⁹ DOD Directive 5205.82, *Defense Institution Building* (Washington, DC: DOD, May 4, 2017), 3.

³⁰ *U.S. Department of Housing and Urban Development Strategic Plan 2014–2018* (Washington, DC: Department of Housing and Urban Development, 2014), 34; *U.S. Department of Energy Strategic Plan 2014–2018* (Washington, DC: Department of Energy, 2014), 1, 3, 13, 15, 16; *U.S. Department of Labor Strategic Plan Fiscal Years 2014–2018* (Washington, DC: Department of Labor, 2014), 28, 29; *U.S. Department of the Interior Strategic Plan for Fiscal Years 2014–2018* (Washington, DC: Department of the Interior, 2014), 26, 42; *Department of the Treasury FY 2014–2017 Strategic Plan* (Washington, DC: Department of the Treasury, 2014), 28, 33; *Treasury Strategic Plan 2018–2022* (Washington, DC: Department of the Treasury, 2018), 24–27.

³¹ DOD Directive 3000.07, *Irregular Warfare* (Washington, DC: DOD, August 28, 2014), 1.

³² JP 3-0, *Joint Operations* (Washington, DC: The Joint Staff, January 17, 2017), V-15.

³³ Seth G. Jones et al., *Establishing Law and Order after Conflict* (Santa Monica, CA: RAND, 2005), 3.

³⁴ Ibid., 105; Dustin Roberts, "DDR Continues to Educate Iraqi Workers, *Army.mil*, July 31, 2009, available at <www.army.mil/article/25322/ddr_continues_to_educate_iraqi_workers>; "Troops Train Iraqis in Forensic Techniques," American Forces Press Service, April 16, 2009, available at <www.centcom.mil/MEDIA/NEWS-ARTICLES/News-Article-View/Article/883827/troops-train-iraqis-in-forensic-techniques/>.

³⁵ *Afghanistan Security: Department of Defense Effort to Train Afghan Police Relies on Contractor Personnel to Fill Skill and Resource Gaps*, GAO-12-293R (Washington, DC: Government Accountability Office, January 2011), 3, 6.

³⁶ Peter R. Mansoor, *Surge: My Journey with General David Petraeus and the Remaking of the Iraq War* (New Haven, CT: Yale University Press, 2013), 212–213.

³⁷ *Rule of Law in Afghanistan: U.S. Agencies Lack a Strategy and Cannot Fully Determine the Effectiveness of Programs Costing More Than $1 Billion*, SIGAR 15-68-AR/Rule of Law (Washington DC: Special Inspector General for Afghanistan Reconstruction, July 2015).

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⁴⁰ *Fiscal Years 2014–2018 Strategic Plan*, 13, 21, 22; *Department of Homeland Security Strategic Plan Fiscal Years 2012–2016*, 19; "Emergency Support Function #13."

⁴¹ Bruce R. Pirnie and Edward O'Connell, *Counterinsurgency in Iraq (2003–2006)*, RAND Counterinsurgency Study, vol. 2 (Santa Monica, CA: RAND, 2008), xv, 2, 22.

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⁴⁴ Air Force Handbook 10-222, vol. 22, *Camp Planning for Displaced Persons* (Washington, DC: Headquarters Department of the Air Force, April 20, 2011), 16.

⁴⁵ JP 3-29, *Foreign Humanitarian Assistance*, IV-20.

⁴⁶ David S. Cloud and Joseph Tanfani, "Mattis Authorizes Up to 4,000 National Guard Troops for U.S. Border with Mexico, *Los Angeles Times*, April 7, 2018, available at <www.latimes.com/nation/la-na-border-troops-20180406-story.html>.

Pararescuemen practice personnel recovery mission during PJ Rodeo Competition near Patrick Air Force Base, Florida, September 20, 2016 (U.S. Air Force/Brandon Shapiro)

Building Joint Personnel Recovery Through Multinational Collaboration

By David Gayvert

n *Joint Force Quarterly* 88 (1st Quarter 2018), an article titled "Born Multinational: Capability Solutions for Joint, Multinational, and Coalition Operations" introduced the Multinational Capability Development Cam-

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paign (MCDC), a Joint Staff J7 multinational force development initiative focused on collaboratively developing and assessing concepts and capabilities to address the challenges associated with conducting coalition and multinational operations.[1] This article provides additional information about how the MCDC enables effective collaboration among like-minded partner nations

(PN) in the vital mission area of personnel recovery (PR).

The Integrated Coalition Personnel Recovery Capability (ICPRC) is one of nine projects undertaken during the current 2017–2018 MCDC program cycle, the theme of which is Rapid Aggregation of Coalition and Partner Forces. Personnel recovery is included within this theme as a high-interest subject area.

Pararescuemen assigned to 83rd Expeditionary Rescue Squadron observe medical procedures performed by members of U.S. Army Aviation Reaction Force, Task Force Brawler, on flightline at Bagram Airfield, Afghanistan, February 22, 2018 (U.S. Air Force/Gregory Brook)

Joint Publication 3-50 defines *personnel recovery* as the "sum of military, diplomatic, and civil efforts to prepare for and execute the recovery and reintegration of isolated personnel."[2]

Several studies have assessed that multinational forces and operations are at risk due to a lack of an effective and enduring global PR network, using a common lexicon, and cooperation and synchronization mechanisms to optimally employ nations' capabilities across the full PR spectrum—diplomatic, military, and civil domains. This hampers the ability of commanders and other decisionmakers to prevent or respond effectively to isolating events.

The ICPRC project aims to address this problem by creating an international guidebook that will provide nations and governmental or nongovernmental organizations a tool to assess and address gaps in PR capability and interoperability, as well as to educate senior leaders about the importance and basic elements of personnel recovery. Doing so will enable more efficient preparation, planning,

execution, and adaptation functions of personnel recovery among allies and partners, providing common principles, terms and definitions, capability standards, best practices, and processes. The guidebook will be a descriptive rather than prescriptive product and is not intended to be a doctrinal manual; its recommendations are not binding on any nation.

As with all MCDC projects, the ICPRC seeks to implement the guidance contained in key policy documents, from the National Defense Strategy to Chairman of the Joint Chief (CJCS) issuances, joint publications, and derivative Service doctrine, all of which echo the Department of Defense (DOD) emphasis on multinational cooperation. As noted in CJCS Instruction 2700.01F, *Rationalization, Standardization, and Interoperability Activities*, for example, leveraging the capabilities, capacities, and shared interests of partner nations is a key force multiplier for U.S. military planners and commanders.[3] Furthermore, strengthening our allies and forging new

multinational partnerships is among Secretary of Defense James Mattis's top priorities.[4] Reinforcing this emphasis, General Joseph Dunford recently affirmed that "allies and partners are our strategic center of gravity."[5]

Clearly, the volatile global security environment will continue to require—more than ever before—a comprehensive approach to effectively counter collective threats, one that must include political, diplomatic, military, civil, and nongovernmental activities conducted via partnered coalitions of like-minded nations and organizations. Yet in many mission areas—and personnel recovery is certainly one of these—the lack of compatible, interoperable policies and doctrine; education and training; tactics, techniques, and procedures (TTP); capability standards; and strong, functional relationships inhibits optimal partnering with our allies and partner nations.

In regions like Africa and the Pacific, where the United States has only limited PR-capable assets available, this situation

can create significant risks to DOD and other U.S. and PN personnel operating in those areas. In short, the United States simply does not have the capacity to handle all current and potential future PR requirements. Therefore, PN support is essential to reduce risk and ensure sustained PR coverage for U.S. and coalition missions, as well as guarantee adequate response to future operational threats that may require military response. Thus, growing the PR capability and capacity of willing partners and improving interoperability through shared doctrine, training, and TTP are certainly in the interests of the United States and its allies and partners.

Why is this so important? Aside from reducing the direct risk to our people, past experience illustrates that when personnel are held captive, or otherwise isolated in hostile areas or conditions, the lack of a timely and effective recovery operation—or an adversary's exploitation of isolated personnel through public media—can prompt changes in policies that place collective strategic aims at risk and may even threaten the stability of coalitions. Still burned into our minds, the images of U.S. personnel being dragged through the streets of Mogadishu, Somalia, in 1993, directly led to the U.S. decision not to intervene in the 1994 Rwandan genocide.[6] The more recent press photographs showing the horrific fate of the Jordanian pilot executed by terrorists in Syria similarly had massive impacts on public opinion and subsequent political decisions made.[7]

Accordingly, to address this gap in PR capability and interoperability and provide multinational force commanders with an improved capability to quickly and effectively plan, synchronize, execute, and assess joint and combined PR operations, the Joint Personnel Recovery Agency (JPRA) teamed with the North Atlantic Treaty Organization (NATO) Allied Command Transformation (ACT) to co-lead the ICPRC project. The project provides a means for both organizations to achieve several key strategic objectives and has already produced value for project partners who are using parts of the guidebook (published in October

2018) to educate leaders within their nations about personnel recovery, as well as influence the curriculum of their PR education and training programs.

The ICPRC Project Team and Objectives

Currently, 20 nations and multinational organizations from around the globe are participating in the project in some capacity.[8] In addition to specific information explaining how to effectively prepare, plan, and execute personnel recovery, the ICPRC project promotes several key concepts:

- PR capability, whether material (platforms, equipment) or nonmaterial (policy, doctrine, education, training), cannot be produced overnight; it must be developed, acquired, and maintained well in advance of the operational need.
- Personnel recovery is truly a whole-of-nation responsibility requiring involvement of political, diplomatic, civil, and military leadership and capabilities; as such, it is an inherently joint mission area.
- The need for interoperability—both internationally and among national components—in joint PR (JPR) capabilities is paramount and should be factored into all force development decisions.
- Mutual trust and working relationships among allies and partner nations must be developed and intensified over time through training, exercises, and other collaboration at all levels.
- Preparing, planning, and effectively executing personnel recovery is a responsibility for all nations and leaders.
- Personnel recovery is a moral obligation that will only provide reassurance to and trust among at-risk personnel if leaders adequately prepare and plan to ensure adequate and available capabilities when required.
- Every nation can contribute something to PR.

This last message is in fact key: leaders—within both DOD and our

international partners—must have a common understanding of the wide range of activities and expertise that comprise personnel recovery and be prepared to contribute something—whether it be equipment, recovery platforms, or simply well-trained personnel—to the collective mission. Political, diplomatic, civilian, and military leaders alike must continuously collaborate to effectively prepare, plan, and execute personnel recovery so as to be able to locate, support, recover, and reintegrate isolated personnel. They must recognize that requisite capabilities cannot be established overnight, or in the immediate aftermath of a PR event. The tendency to postpone commitment of time and resources to this critical mission "until we need it" must be avoided. Preparation and planning for isolating events must be done well in advance of need; history proves that virtually all nations will experience a PR event sooner or later.

The guidebook emphasizes that among the most important activities is development of national and organizational policies for PR/JPR that establish priorities for capability, capacity, and interoperability development, along with ways and means to achieve them.

The good news is that nations have a wide range of ways in which they may contribute to and improve the effectiveness of combined PR activities. In addition to developing and implementing formal policies that articulate the desired endstate (and that specify ways and means for the conduct of personnel recovery both unilaterally and within coalitions of allies and partners), other associated activities include but are not limited to providing key mission enablers such as intelligence, public affairs, strategic communications, and medical support.

The guidebook urges that relationships, communications networks, and written agreements among partners be established early, then maintained and strengthened throughout the preparation, planning, execution, and adaptation phases of personnel recovery, whether as part of a coalition, military operation, or within a diplomatic or other nonmilitary context. It calls attention to the fact that

Airmen with 23rd Special Tactics Squadron and Soldiers with 160th Special Operations Aviation Regiment (Airborne) team up for personnel recovery training utilizing alternate infiltration and exfiltration training, on Wynnehaven Beach, Florida, April 9, 2013 (U.S. Air Force/Christopher Callaway)

the sensitivities surrounding a particular isolating event may require the lead for recovery decisionmaking, planning, and execution to shift among military, diplomatic, and civil teams, depending on the political environment at the scene, assets available, and leaders' need to coordinate and offer guidance, planning, and information support across the domains.

Throughout the planning and project execution (February 2017 to present), the ICPRC team has consistently contributed time and expertise to create a practical, compact reference, focused on the core components and activities of the PR system, providing enough information to understand how personnel recovery works—and how essential it is to national interests—without drowning the reader in detail.

ICPRC Working Session 2, Almagro, Spain

Envisioned users of the guidebook include not only partner nations that wish to build or improve their PR capability, capacity, and interoperability but also security assistance/cooperation and force development program officers and planners developing PR concepts, doctrine, and training strategies.

Measures of effectiveness for the project include:

- Increase in (commitment to) user-nation PR capabilities: Guidebook provides a useful roadmap for PR/JPR capability and interoperability evaluation, preparation, planning, and development.
- Improvement in PN PR participation: Every nation can (and does) contribute some capability.
- Improvement in coalition interoperability: Partner nations ready to contribute value to PR mission on day one (plug and play capability).
- Demand signal for the guidebook: Have the right users asked for it and what is their feedback?

The fact that some of the project team nations are already using the current draft guidebook to convey key aspects of personnel recovery to senior commanders as well as to influence the curriculum of their PR education and training programs is an early indicator that the ICPRC will produce a valuable tool for the global PR community. Particularly among developing nations, the guidebook will provide ready access to the cumulative expertise and relevant operational experience resident within NATO, European Union, JPRA, and other ICPRC project partners.

However, publication of the guidebook aside, the most important long-term outcome of the ICPRC project will certainly be the expansion and strengthening of many key bilateral and multilateral relationships. For example, through collaboration on the ICPRC, JPRA has significantly increased its understanding of and support to complementary capability development

activities under way in other nations, as well as key organizations like the European Personnel Recovery Centre and European Defence Agency Project Team Personnel Recovery. This increase in shared understanding constitutes real progress toward the ultimate goal of a truly global PR federation of capable, willing, and active partners.

ICPRC Supports JPRA Multinational Outreach Objectives

The JPRA mission is to lead DOD personnel recovery, providing strategic direction, oversight, operational support, analysis, capability integration, and education and training to improve PR interoperability and enable DOD, multinational partners, and the interagency community to prevent, prepare for, and respond to isolating events.

As a CJCS-controlled activity and the DOD office of primary responsibility for personnel recovery (less policy), building and sustaining an international network of willing and capable partners is a major objective and mission-essential task for JPRA, as the agency pursues its strategic vision of achieving seamless, full-spectrum personnel recovery through enduring global integration and interoperability.[9]

The JPRA charter includes three separate references that give it specified authority and responsibility in the area of multinational engagement.[10] The charter:

- directs JPRA to "provide a team of recognized experts to support DOD, interagency [community], *and allied efforts* to identify and meet current and future PR challenges"
- directs JPRA to "maintain direct liaison with DOD components, the interagency [community], and *multinational partners*"
- authorizes JPRA the "appointment of allied personnel to serve in JPRA" (after coordination with Air Force Manpower, Personnel, and Services).

In addition to the charter, DOD Directive 3002.01, *Personnel Recovery in the Department of Defense*, further establishes that JPRA shall:

- "assist other U.S. Government departments and agencies, *partner nations*, and others, as directed by the President or the Secretary of Defense with PR-related education and training programs"
- "[d]evelop and manage a capability to share appropriate lessons learned with interagency [community] and *partner nations*"
- "[a]ssist in developing and coordinating NATO doctrine and other NATO operational publications to distribute personnel recovery guidance and encourage synchronization with U.S. personnel recovery doctrine."[11]

To carry out these important specified tasks, JPRA has developed an international engagement strategy that is outcome-oriented, enabling the targeting of resources in a way that ensures force multiplication without duplication of effort and maintains a clear path toward the development of an enduring global PR community.

The strategy is organized into five major multinational lines of effort (LOE), all derived from the agency's authorities; essential, specified, and implied tasks; and aligned with the priorities of the Joint Staff J7 Director's Campaign Plan for Joint Force Development:

- LOE1: Strategy and Planning
- LOE2: Bilateral Engagement
- LOE3: Multilateral Engagement
- LOE4: Strategic Communication
- LOE5: Education and Training.

The MCDC program is a major LOE3 activity and helps JPRA advance its organizational goals in significant ways. By providing a structured and proven forum to collaboratively develop and introduce new nonmaterial capabilities, the program is an ideal venue through which JPRA can execute its directed responsibilities in the multinational arena. Among the foremost of these is ensuring that senior leaders—military, diplomatic, and civil—recognize the importance of the PR mission area and appropriately prepare and plan accordingly. The ICPRC guidebook does just that.

Finally, while there are established MCDC planning, approval, and reporting processes, project teams are able to plan, develop, and complete their work largely unfettered by the bureaucratic requirements that often characterize government-sponsored activities. The ICPRC project will be completed in November 2018, closing out the MCDC 2017–2018 cycle. Concept development for additional PR-related projects are currently under way for the 2019–2020 cycle.

Another critical element of this strategy under Bilateral Engagement (LOE2) is the nascent JPRA Foreign Liaison Officer (FLO) program, which aims at further strengthening key bilateral relationships by posting allied PR specialists as FLOs at JPRA headquarters. This would enable them to share their nations' PR experiences, expertise, and perspective while simultaneously developing expertise in the U.S. PR system. These exchanges serve to better align bilateral and multilateral approaches to improving capability, capacity, and interoperability and in the process, strengthen the global JPR community.

Lieutenant Colonel Georg Stauch of the German army arrived at JPRA in January 2018 and is JPRA's first FLO. On May 8, 2018, this valuable relationship was formally recognized with a ceremonial posting of the Federal Republic of Germany's flag at JPRA headquarters. JPRA looks forward to welcoming additional allied FLOs from the United Kingdom and Poland in mid–fiscal year 2019.

ICPRC Supports NATO Commitment to JPR

In 2015, NATO ACT, through its Capability Development Division, initiated efforts to establish JPR as a key developmental focus, to be pursued through a number of interrelated activities. These included analysis of whether JPR should become a defined discipline within the Alliance as a means to better establish standards of training and professionalize execution of this essential mission area. In February 2016, NATO formally promulgated Allied Joint Publication 3-7, *Allied*

Joint Doctrine for Recovery of Personnel in a Hostile Environment. In March 2017, it submitted the Action Plan for Joint Personnel Recovery in a Hostile Environment to NATO headquarters for military committee approval, and in October 2017, submitted a draft JPR policy for NATO for North Atlantic Council review. Over the past 3 years, NATO has also developed and ratified a number of JPR-related standardization agreements within the Alliance. These address survival, evasion, resistance, and extraction training standards, PR staff education, and PR TTP.

These are major milestones in the effort to improve JPR capability, capacity, and interoperability within the Alliance, as well as its operational partners. The action plan in particular is significant, as it describes the path to achieve a long-term vision of an integrated JPR capability in NATO. It contains 30 action items organized under 4 strategic objectives (SO) and related LOE:

- SO1/LOE1 Doctrine: Agreed Policy, Doctrine, Plans, and Documentation
- SO2/LOE2 Training: Trained and Qualified Forces, Trained Command and Control Structure
- SO3/LOE3 Organization: Integrated Command and Control Structure
- SO4/LOE4 Material: Force Structure Fielded and Operational.

The ICPRC project is completely complementary to the action plan and will help it accomplish many of its objectives, particularly in the doctrine and training SO/LOE.

NATO also co-leads three other projects within the MCDC 2017–2018 cycle. The Federated Mission Networking/Mission Partner Environment addresses capability development requirements for civil-military information-sharing. The International Cyberspace Operations Planning Curricula will create interoperable educational planning curricula that will effectively build courses to train cyberspace planners to conduct operations as an integral component of multinational force operations and exercises. And the

Medical Modular Approaches project is developing a concept for modular, interoperable medical capabilities that provides a flexible, agile, and mission-tailored configuration and enhancement of an end-to-end multinational medical support system. Clearly, the MCDC program provides NATO with a vehicle through which it may address a wide range of capability development challenges.

Conclusion

The ICPRC project will enable greater standardization and harmonization of JPR TTP, doctrine, and policy, and shared understanding among project partners of the JPR capabilities and capacity of coalition partner nations. It will provide a useful tool for other nations and organizations that wish to create, develop, or simply improve their JPR program and interoperable capabilities. Most important, it will underscore the importance of effective personnel recovery to all nations and the necessity that senior decisionmakers factor PR considerations into all operational preparations and planning.

Ultimately, the project aims to increase operational participation and burden-sharing among allies and partner nations as a means to sustain combined JPR capability and improved personnel and equipment interoperability. An ambitious goal to be sure, but one that is within reach because of programs like MCDC that harness the creativity, experience, and hard work of multinational partners to collaboratively, quickly, and affordably identify, analyze, and *solve* common problems. **JFQ**

Notes

[1] Charles W. Robinson, "Born Multinational: Capability Solutions for Joint, Multinational, and Coalition Operations," *Joint Force Quarterly* 88 (1st Quarter 2018), 128–132.

[2] Joint Publication 3-50, *Personnel Recovery* (Washington, DC: The Joint Staff, December 20, 2011).

[3] Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 2700.01F, *Rationalization, Standardization, and Interoperability Activities* (Washington, DC: The Joint Staff, March 18, 2015).

[4] James Mattis, "Memorandum for All Department of Defense Personnel," October 5, 2017, available at <www.defense.gov/Portals/1/Documents/pubs/GUIDANCE-FROM-SECRETARY-JIM-MATTIS.pdf>.

[5] Joseph F. Dunford, Jr., "Allies and Partners Are Our Strategic Center of Gravity," *Joint Force Quarterly* 87 (4th Quarter 2017), 4–5.

[6] Steve Baldauf, "Why the U.S. Didn't Intervene in the Rwandan Genocide," *Christian Science Monitor*, April 7, 2009, available at <www.csmonitor.com/World/Africa/2009/0407/p06s14-woaf.html>.

[7] Adam Chandler, "'I Expect the Jordanian Government to Seek Revenge,'" *The Atlantic*, February 4, 2015, available at <www.theatlantic.com/international/archive/2015/02/jordan-pilot-ISIS-execution-unity-Mouath-al-Kasaesbeh-King-Abdullah-revenge/385147>.

[8] Australia, Austria, Denmark, European Personnel Recovery Centre, European Union, Finland, France, Germany, Hungary, Italy, the North Atlantic Treaty Organization, the Netherlands, New Zealand, Norway, Poland, the Republic of Korea, Spain, Sweden, the United Kingdom, and the United States.

[9] CJCSI 3270.01B, *Personnel Recovery* (Washington, DC: The Joint Staff, January 23, 2015).

[10] Deputy Secretary of Defense Memorandum, "Realignment of the Joint Personnel Recovery Agency (JPRA) Under the Department of the Air Force, with Attachment," November 25, 2011. Emphases added.

[11] Department of Defense (DOD) Directive 3002.01, *Personnel Recovery in the Department of Defense* (Washington, DC: DOD, April 16, 2009, Incorporating Change 1, April 4, 2013). Emphases added.

Boatswain's mate seaman apprentice assigned to Amphibious Construction Battalion 1 prepares U.S. Navy Improved Navy Lighterage System causeway ferry for on-loading during Joint Logistics Over the Shore 2016, Naval Magazine Indian Island, Washington, June 13, 2016 (U.S. Air Force/Kenneth W. Norman)

Joint Publication 4-0, *Joint Logistics*

By Andrew Keene

The Joint Staff Director, Logistics Directorate (J4), approved the revision of Joint Publication (JP) 4-0, *Joint Logistics*. The publication, signed by the Director of Joint Force Development (J7), is the latest keystone document of the joint doctrine logistics series since 1995. The Chairman of the Joint Chiefs of Staff approved the first official version of JP 4-0 in 1995. Since then, the joint doctrine development community has revised JP 4-0 in 2000, 2008, and 2013. In 2000, JP 4-0 introduced the concept of focused logistics and sustainment for effective combat power. In 2008, the JP 4-0 update shifted emphasis by introducing the joint logistics environment and joint logistics imperatives. The 2013 revision introduced the concept of the joint logistics enterprise (JLEnt) while providing guidance on coordinating and synchronizing joint logistics.

JP 4-0 was developed to provide the doctrinal foundation for logistics planning, execution, and assessment in support of joint operations. It focuses on the integration of strategic, operational, and tactical support efforts while leveraging the global JLEnt to affect the mobilization and movement of forces and materiel to sustain a joint force commander's concept of operations. Additionally, it provides guidance for joint logistics, describes core logistics functions essential to success, and offers a framework for combatant commanders and subordinate commanders to integrate capabilities from national, multinational, Services, and combat support agencies to provide forces properly equipped and trained, when and where required.

The 2018 version of JP 4-0 is not a radical departure from the previous version. The majority of changes ensure the publication now contains the most current figures, terms, definitions, and references based on changes to other JPs in the joint doctrine library since approval

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of the 2013 JP 4-0 version. Most notably, the 2018 version contains five joint logistics focus areas: warfighter readiness, competition below armed conflict, global integration, innovation, and strengthening alliance and partner networks. These will guide joint logisticians in the performance of the integrating functions needed for successful joint operations.

The joint community's recommendations resulted in the consolidation of JP 4-06, *Mortuary Affairs*, into the JP 4-0 revision. The revision also incorporates updated information regarding health services from the 2017 release of JP 4-02, *Joint Health Services*. It updates the description of the directive authority for logistics and includes amplified information regarding the roles of U.S. Transportation Command and combat support agencies such as the Defense Logistics Agency within the JLEnt. The latest revision more adequately describes technology and how it can enable the joint force commander to effectively control logistics within the operational area, if leveraged effectively.

The technology section describes how new technologies, in the form of information systems, decision support tools, and evolving communications capabilities, can improve visibility of logistics processes, resources, and requirements and provide the information necessary to make effective decisions. Additionally, the revision includes clarifying information for base operating support integrator and lead Service support.

Because of the interrelationship between logistics and all phases of operations, JP 4-0 was developed in close collaboration with other recent versions of joint publications, ensuring continuity between keystone JPs to address strategic, operational, and tactical issues. Logistics support will continue to evolve. As the JLEnt develops updated processes in the new logistics environment, the joint doctrine development community will capture those best practices and integrate them into JP 4-0 through the adaptive doctrine process.

In an effort to reflect adaptive doctrine, this keystone now contains appendices for each subsequent JP

Joint Publications (JPs) Under Revision (to be signed within 6 months)

JP 1, *Doctrine for the Armed Forces of the United States*

JP 3-02, *Amphibious Operations*

JP 3-05, *Special Operations*

JP 3-06, *Joint Urban Operations*

JP 3-07.4, *Counterdrug Operations*

JP 3-11, *Operations in CBRN Environments*

JP 3-16, *Multinational Operations*

JP 3-22, *Foreign Internal Defense*

JP 3-28, *Defense Support to Civil Authorities*

JP 3-29, *Foreign Humanitarian Assistance*

JP 3-30, *Command and Control for Joint Air Operations*

JP 3-60, *Joint Targeting*

JP 3-72, *Nuclear Operations*

JP 4-0, *Joint Logistics*

JP 4-04, *Contingency Basing*

JPs Revised (signed within last 6 months)

JP 3-07.3, *Peace Operations*

JP 3-12, *Cyberspace Operations*

JP 3-14, *Space Operations*

JP 3-15.1, *Counter–Improvised Explosive Device Operations*

JP 3-26, *Counterterrorism*

JP 3-57, *Civil-Military Operations* (Joint Staff Doctrine Sponsor Signature)

JP 4-09, *Distribution Operations*

Joint Doctrine Note 1-17, *Strategy*

within the JP 4-0 series. The appendices provide horizontal and vertical linkages to the keystone and within the joint doctrine publication hierarchy to best support joint operations (JP 3-0) and the foundation for joint doctrine publication hierarchy reset considerations that elaborate on or improve joint doctrine efficiencies.

The updated JP 4-0 is a big step in aligning logistics joint doctrine with the processes used by logisticians in the combatant commands and the guidance in the National Military Strategy and Joint Strategic Campaign Plan. This version provides joint force commanders and their component commanders with processes that allow for that flexibility and the ability to provide streamlined logistics support in an uncertain and challenging environment. **JFQ**

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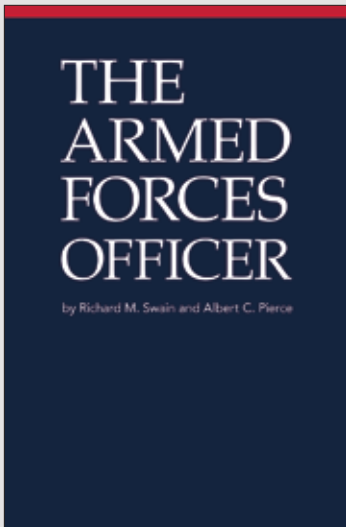
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